DOCUMENT RESUME

ED 433 006	IR 019 732
TITLE	Education and Technology Initiatives. Joint Hearing before the Committee on Commerce and the Committee on Education and the Workforce, House of Representatives, One Hundred Fifth Congress, Second Session.
INSTITUTION	Congress of the U.S., Washington, DC. House Committee on Commerce.; Congress of the U.S., Washington, DC. House Committee on Education and the Workforce.
ISBN	ISBN-0-16-057671-7
PUB DATE	1998-09-16
NOTE	72p.; Committee on Commerce Serial No. 105-118; Committee on Education and the Workforce Serial No. 105-151.
AVAILABLE FROM	U.S. Government Printing Office, Superintendent of Documents, Congressional Sales Office, Washington, DC 20402.
PUB TYPE	Legal/Legislative/Regulatory Materials (090)
EDRS PRICE	MF01/PC03 Plus Postage.
DESCRIPTORS	Access to Information; Computer Uses in Education; *Educational Development; Educational Finance; Educational Resources; *Educational Technology; Elementary Secondary Education; Federal Aid; Federal Government; Federal Programs; *Financial Support; Futures (of Society); *Government Role; Hearings; *Information Technology; Internet; Partnerships in Education; Postsecondary Education; Private Sector; Program Development; Program Evaluation; Resource Allocation; Teacher Education; *Telecommunications
IDENTIFIERS	Access to Technology; Congress 105th; Information Infrastructure; *Technology Role; Universal Service (Telecommunications)

ABSTRACT

This hearing examined federal and private sector programs that provide assistance to schools and libraries to ensure that telecommunications technologies are being used effectively by schools. Topics include: local, state and national information infrastructures; program development; the role of technology; increase in funding; access to the Internet and technology "haves" and "have nots"; the E-rate; teacher training; partnership projects; corporate support; evaluation efforts; and technological advancement and the future of education. Included are the statements of: Forrest J. Fisher, Director, Education Technology Support Center, Education Service District 105; Brent D. Frey, Supervisor of Computer Services, West Shore School District; Carlotta C. Joyner, Director, Education and Employment Issues, General Accounting Office; Jane J. Prancan, Executive Director, US West Foundation; Marilyn Reznick, Vice President, Education Programs, AT&T Foundation; Linda Roberts, Director, Office of Educational Technology and Special Advisor to the Secretary on Technology, Department of Education; Tom W. Sloan, Delaware State Librarian; Joseph W. Waz, Jr., Vice President, External Affairs, Comcast Corporation; and Nancy M. Mitchell, Director, Education Market Group, Pacific Bell. (AEF)

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EDUCATION AND TECHNOLOGY INITIATIVES

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
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JOINT HEARING

BEFORE THE

COMMITTEE ON COMMERCE

AND THE

COMMITTEE ON EDUCATION AND THE WORKFORCE

HOUSE OF REPRESENTATIVES

ONE HUNDRED FIFTH CONGRESS

SECOND SESSION

SEPTEMBER 16, 1998

Committee on Commerce Serial No. 105–118
Committee on Education and the Workforce Serial No. 105–151

Printed for the use of the Committee on Commerce

U.S. GOVERNMENT PRINTING OFFICE
50–940CC WASHINGTON : 1998

For sale by the U.S. Government Printing Office
Superintendent of Documents, Congressional Sales Office, Washington, DC 20402
ISBN 0-16-057671-7

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EDUCATION AND TECHNOLOGY INITIATIVES

WEDNESDAY, SEPTEMBER 16, 1998

HOUSE OF REPRESENTATIVES,
COMMITTEE ON COMMERCE, AND THE
COMMITTEE ON EDUCATION AND THE WORKFORCE,
Washington, DC.

The committees met, pursuant to notice, at 10:32 a.m., in room 2123, Rayburn House Office Building, Hon. Tom Bliley, (chairman, Committee on Commerce) presiding.

Members present, Committee on Commerce: Representatives Bliley, Deal, Whitfield, Ganske, Norwood, White, Shimkus, Markey, Deutsch, Eshoo, Stupak, Sawyer, Wynn, Green, and McCarthy.

Members present, Committee on Education and the Workforce: Representatives Goodling, Petri, Talent, Martinez, Payne, Mink, Roemer, Scott, Woolsey, Romero-Barceló, Fattah, Hinojosa, Tierney, Sanchez, and Kucinich.

Staff present, Committee on Commerce: John Morabito, majority counsel; Mike O'Reilly, professional staff; Anthony Habib, legislative clerk, and Andy Levin, minority counsel.

Staff present, Committee on Education and the Workforce: Denzel McGuire, professional staff; Rich Stombres, legislative assistant; and Kevin Talley, staff director.

Chairman BLILEY. The committee will come to order.

The Committee on Commerce is meeting jointly today with the Committee on Education and the Workforce to hear testimony on education and technology initiatives. Because of the large number of members here today, the Chair would ask unanimous consent that the chairman and the ranking minority member of the Committee on Commerce and the Committee on Education and the Workforce each be recognized for 5 minutes for purpose of delivering an opening statement and that all other members may be allowed to submit their opening statements for the record. Members will, of course, be recognized for questions under the 5-minute rule.

Is there any objection?

Hearing none, that will be the order.

The Chair recognizes himself for an opening statement at this time.

I want to thank my good friend from Pennsylvania, Chairman Goodling, for agreeing to conduct this hearing today with the Commerce Committee.

Chairman Goodling has dedicated much of his professional life to helping students and improving education in America. I am sure he will continue to do so for years to come. I welcome members of the Education and Workforce Committee as we consider this very important topic on education and technology initiatives. We are here today to examine Federal and private sector programs that provide assistance to schools and libraries to ensure that they have the necessary tools to prepare our children for the 21st century. Both committees have oversight responsibilities in this area, and we have an obligation not only to ensure that telecommunications technologies are being used effectively by schools, but also to make sure that students benefit from the program.

For our part, the Commerce Committee has sought to ensure that schools and libraries will not be left behind in the telecommunications revolution as part of the Telecommunications Act of 1996, Congress included a provision that provided schools and libraries with discounts on their purchase of telecommunications services and our intent was clear.

Unfortunately, the Federal Communication Commission, working in conjunction with the Vice President, got it wrong. As a result, all that the FCC has given us is higher phone rates, new bureaucracies and court challenges. After 2½ years of attempting to implement this program, the FCC has failed to give a single school or library a discount on telecommunications services that Congress intended.

Technology plays an important role in our Nation's classrooms. Funding for such technology has increased more than 2,000 percent since 1995. There are many Federal, State, local, and private programs to help provide access. Today, almost 80 percent of our Nation's schools are wired to the Internet, a significant increase from just 35 percent 4 years ago. That's good. But we need to know that all these programs are put to proper and effective use.

I believe our education system is run more effectively and thoughtful at the local and State levels. The Federal Government can never replace the wisdom and care shown by parents, teachers, and local administrators.

Washington must consider how its actions may affect local communities. For instance, I wonder whether Federal bureaucrats have fully considered the consequence of children being just one click away from pornography in every classroom.

Most of you know Chairman Goodling and I sent a letter to GAO, asking it to study all Federal programs that provide assistance to schools and libraries for education and technology uses. From our preliminary discussions with GAO, it is clear that no one knows how our taxpayer dollars are actually being spent, what specific technologies they are being spent on, and whether 30 or 40 Federal education programs that overlap with one another are being administered efficiently.

I hope our GAO witness will be able to share some of the findings today. We will also hear from several panelists today who will describe their charitable, financial, and time commitments to ensure that our Nation's schools are part of the technological revolution. I would like to thank them and the vast number of other telecommunications players who have sought to participate in this worthy goal.

With strong private sector support, the role of government assistance can be channeled to those schools or libraries that may fall through the cracks. I also welcome our other witnesses and look forward to hearing their testimony as well.

The Chair would now like to recognize the chairman of the Education and the Workforce Committee, a good friend, the gentleman from Pennsylvania, Mr. Goodling, for an opening statement.

Mr. GOODLING. I thank the chairman and I'd like to express my appreciation to Chairman Bliley for holding this joint technology hearing.

Technology is an issue that crosses a number of jurisdictions—in fact, downtown perhaps 30-some—I'm not sure. And I think it's very important that we have this joint hearing.

I'd like to take the opportunity and thank all of our witnesses for taking the time to come testify before our committee. Particularly, I'd like to give a warm welcome to Brent Frey, who is a constituent of mine, and the Supervisor of Educational Technology for the West Shore School District of Cumberland County, Pennsylvania.

Technology and education are two issues critical to the future of our country. Technology will continue to play a bigger role in the education of our children, whether through electronic libraries or computers—in the classroom or at home.

As interest in education technology grows, I believe it is imperative that technology is used to enhance, and I repeat, to enhance the success of basic academics, not supplant it. Clearly, education technology is a popular issue. Funding for educational technology has skyrocketed over the last few years. Federal funding alone has increased by 2,304 percent since 1995. That astounding figure does not include the enormous investments that State and local governments, and the private sector have made. Nor does that figure include the $2 billion the E-rate was expected to generate for schools. Unfortunately, 2½ years—as Chairman Bliley has indicated—after the Telecommunications Act was passed, not a single school has received one dime from the E-rate.

Fortunately, even without E-rate, access to the Internet has quadrupled between 1994 and 1996, and now roughly 80 percent of schools have access to the Internet. As we look to continue to support educational technology initiatives and increase access to educational technology, we must ensure that Federal education dollars are spent wisely, and that consumers are not unfairly taxed for new school technology. By wisely, I mean we look to ensure that educational technology resources are managed and coordinated in ways that maximize learning and teaching. As a former teacher and principal, and as chairman of the Education and the Workforce Committee, my primary concern is that education funding leads to increased academic performance, not just the presence of new computers in the classroom or access to the Internet.

I look forward to hearing from our witnesses who will provide a Federal, local, and private sector perspective on this issue and their recommendations on how the Federal Government can assist teachers in improving student performance through the effective use of technology.

I thank the chairman for yielding.

Chairman BLILEY. I thank the gentleman. The time of the gentleman has expired.

The Chair now recognizes the gentleman from Massachusetts, Mr. Markey, for an opening statement.

Mr. MARKEY. Thank you, Mr. Chairman. I want to commend you as well as Chairman Goodling for calling this hearing this morning.

We are gathered here today and joining forces with the Education Committee to do an analysis of the current state of educational technology policy. This is a vital issue for the future of our economy and for our society.

A recent Department of Commerce study, conducted by the National Telecommunications and Information Agency, found that rather than closing the gap between digital haves and have-nots, the last 3 years has witnessed a growing chasm between those who have computers and online access at home and those who do not.

The NTIA study found that PC ownership levels between households earning under $15,000 a year and those earning between $50,000 and $75,000 has grown from 38 percentage points in 1994 to 47 percentage points in 1997. The NTIA study also found disturbing data with respect to the growing digital divide among racial groups in the country. White households are twice as likely to own a computer than either Black or Hispanic households. For online access the rates for Whites are nearly three times as high as for Blacks or Hispanics.

This has potentially explosive social consequences for our country if we fail to achieve greater democratization of these technologies and democratization of access to opportunity as a result of access to this technology.

The march of innovation is inexorable. The equitable distribution throughout our society of new innovative technologies is not inexorable. America cannot leave kids from middle class working families out of the knowledge-based economy and still hope to retain its economic standing. Our economy is undergoing a dramatic shift. At the turn of the 20th century, 10 of the 12 largest companies in America were natural resource companies. As we enter the 21st century, the 10 largest and most rapidly expanding industries in the world are brain power industries—telecommunications, computer software, microelectronics, biotech, material science, among others.

In a post-GATT, post-NAFTA world, we must have an integrated plan to ensure that everyone in our society has access to the skills set necessary to compete for jobs in a fiercely competitive global economy. As most of you know, the Telecommunications Act contains a provision that establishes a discounted education rate for learning links to K to 12 schools and libraries. Establishing hook ups to schools can help us deal with the digital divide in our country and ensure that those kids whose families cannot afford access at home at the very least can get the skills set and access to the information age by downloading it in a local library.

While the E-rate program has had a bumpy start because of inadequate funding mechanisms and administrative controversy, and many members on both sides of the aisle have criticized aspects of its implementation, I believe that is a program that has widespread support for its overall mission. The FCC has wisely slowed down the implementation schedule of the program. This will give the agency the time to recalibrate the Universal Service System to find the necessary money and fully pay for this program.

Beyond the E-rate, it is important to address the human resource side of our overall technology policy for our Nation's schools. Computers in the classroom will do little good if teachers are not computer literate, or if schools do not integrate the technology into the course curriculum. Teacher training is very important to make the technology come to life for our Nation's school kids, and I hope that we do not lose sight of this aspect of our overall policy.

Again, Mr. Chairman, I want to thank you, and I would like to thank, Mr. Goodling for conducting this hearing today.

I yield back the balance of my time.

Chairman BLILEY. The time of the gentleman has expired. I thank the gentleman for his statement. At this time, I would like to recognize the gentleman from California, Mr. Martinez, for an opening statement.

Mr. MARTINEZ. Thank you, Mr. Chairman.

Good morning, and I'm pleased to join you and Chairman Goodling and the ranking member, Markey, at today's hearing on education technology initiatives.

Access to cutting edge technology and the Internet is vitally important for the future success of our Nation. The chief investment by the Federal Government in technology for educational purposes is led by three main Federal programs: the Technology Literacy Challenge Fund, Technology Challenge Grants, and most importantly the E-rate program. While other programs, such as Title I, Eisenhower Professional Development, and Vocational Education, support technology investment, these programs are primarily directed toward other purposes. It is important to note that the Federal role in technology for education is by no means an enlarged bureaucracy, but instead a carefully targeted set of initiatives.

While this hearing topic is education technology generally, I do want to specifically address the E-rate program and recent controversy surrounding its implementation.

Presently, accessibility to the Internet varies widely and often is close to non-existent in many low-income communities. Fortunately, the E-rate, through discounted services, will enable thousands of our schools and libraries, especially those in low-income areas, to improve and create access to the Internet. This program, which was created as a part of the Telecommunications Act of 1996, is sorely needed, and the distribution of subsidies has long been anticipated and should happen with due speed.

Unfortunately, some have chosen to attack the E-rate program by asserting that the application process is complicated and burdensome. If there are ways to improve the process, we should. If this is a stealth attack on the program, then it should be exposed for the political effort that it is.

In addition, others have chosen to reinforce the erroneous assertion that the E-rate program has imposed a tax on consumers through their telephone bills. That is especially disturbing because this latest assault is spearheaded by the same phone companies who gained significantly in the Telecommunications Act. It is shameful, and it should be discredited. The role of the Federal Government in educational technology is an important and presently a very limited one. I hope as we consider future efforts in the area of technology that we look to expand the Federal role and ensure that all children have access to the most advanced technology available.

I thank you, Mr. Chairman.

Chairman BLILEY. The time of the gentleman has expired.

[Additional statements submitted for the record follow:]

PREPARED STATEMENT OF BRIAN P. BILBRAY, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Mr. Chairman, I want to thank you for conducting this hearing on education technology initiatives. I look forward to hearing the testimony this morning, especially from the Director of the Government Accounting Office (GAO) on its recently released report.

The issue of technology and education is extremely important to my district, which boasts the highest per capita of home computers in the entire nation. In addition, my district is home to four major universities, including the University of California, and has a multitude of high-tech companies and research facilities specializing in telecommunications and biotechnology. The symbiosis of technology and education is a natural one in my district, and I am pleased that we are giving a high priority to it today.

As a participant in NetDay, I understand firsthand the importance of the local community and businesses participating in the wiring of classrooms. While I support the Universal Service Fund, or "E-rate," I do not believe that we should place all of the responsibility on the federal government to provide for this service. NetDay is a great example of the private sector stepping in and fulfilling this need. However, federal involvement in this is still important and necessary. I am interested in hearing from the GAO today on duplicative services and programs, and think it is in our best interest to ensure that we are not blindly throwing money at a federal program, especially if it is already being provided for through other means.

Regarding the E-rate, I, like a number of my colleagues, have legitimate questions about the program's evident lack of prioritization for truly needy schools, and questionable actions by the bureaucracies that administer the program. In addition, the "line-item" tax now appearing on consumer longdistance bills is problematic, and I believe this misunderstanding needs to be worked out between the FCC and the long-distance companies.

These concerns must continue to be addressed by the FCC in its review of the implementation and funding for this program. Having said this, I am very supportive of what I believe to be the original intent of this program—that of providing funding for the "wiring" of schools and libraries. I continue to believe that we had the right idea when Congress passed this provision in the 1996 Telecommunications Act, and I look forward to its continued service to America's needy schools and libraries.

While many of us agree that the E-rate program could use some improvement, and it appears that virtually all stakeholders have recognized that changes need to be made to this important program, I encourage what I hope will be a continued bipartisan, bicameral effort to restore this program to its original and true intent. I am encouraged by the changes suggested by the FCC this past summer, and am looking forward to the Commerce Committee's continued oversight and involvement in this issue.

Once again, Mr. Chairman, thank you for holding this hearing, and I yield back the balance of my time.

PREPARED STATEMENT OF HON. THOMAS C. SAWYER, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF OHIO

Mr. Chairman, as you know prior to serving on this committee, I served on the Education and the Workforce Committee where I had an opportunity to work directly on several of the education and technology initiatives that we will be discussing today. I want to thank you for holding this joint oversight hearing and welcome my colleagues from the Education and Workforce Committee. I also want to thank Ms. Roberts and our other witnesses for coming to testify before us.

The improvement of education is one of the greatest challenges facing our country. Without question, investment in the learning capacity of this and future generations is crucial to both our long-term economic strength and our continued cultural growth.

I believe we all recognize that education has traditionally been—and should remain a local function and a state responsibility. However, in today's environment it is an overarching national concern. Having said that, federal support can make a crucial difference, especially where local resources are strained or where a coordinated effort can help to achieve national objectives.

As we begin to explore the merits of federal programs that provide funding for schools and libraries to purchase and use telecommunications equipment I would like to highlight a public-private partnership in my congressional district that is having a profound effect on learning.

Earlier this year, Kent State University received a grant from Ameritech to supplement a federal challenge grant it had already received. The initiative called the Ameritech Electronic University School Classroom allows researchers to study students as they complete their classroom assignments using the latest technologies. The project is changing the way teachers teach and students learn because the two are teaching and learning from one another.

The curriculum designed by the teacher promotes a classroom without walls environment because students are encouraged to interview other people on the subject they are studying through the use computers, camcorders, digital cameras and cassette recorders. The new information they learn then generates a need for further research by using the Internet. As the students work to complete their assignment, researchers study the way students are using the new technologies to learn. This program has received overwhelming praise from Ameritech, the University and state and local officials.

As I stated before, Mr. Chairman, education is a local function. However, I believe that this program demonstrates that it is ever more important that the federal government play a role in providing seed money to get technology into the schools of all students.

Again, thank you Mr. Chairman for scheduling this hearing. I look forward to hearing the testimony of our witnesses.

Chairman BLILEY. If our first panel will come forward and take seats, I would like to invite all of you, and I appreciate your coming. Your full statements will be a part of the record. We would ask you, if you can, to summarize, in 5 minutes, the high points of your presentation.

And we would like to begin, if it's agreeable with you, with Dr. Linda Roberts, Director of the Office of Education and Technology, and Special Advisor to the Secretary on Technology, at the U.S. Department of Education.

Dr. Roberts.

STATEMENTS OF LINDA ROBERTS, DIRECTOR, OFFICE OF EDUCATIONAL TECHNOLOGY AND SPECIAL ADVISOR TO THE SECRETARY ON TECHNOLOGY, DEPARTMENT OF EDUCATION; CARLOTTA C. JOYNER, DIRECTOR, EDUCATION AND EMPLOYMENT ISSUES, GENERAL ACCOUNTING OFFICE; JANE J. PRANCAN, EXECUTIVE DIRECTOR, US WEST FOUNDATION; MARILYN REZNICK, VICE PRESIDENT, EDUCATION PROGRAMS, AT&T FOUNDATION; JOSEPH W. WAZ, JR., VICE PRESIDENT, EXTERNAL AFFAIRS, COMCAST CORPORATION; BRENT D. FREY, SUPERVISOR OF COMPUTER SERVICES, WEST SHORE SCHOOL DISTRICT; FORREST J. FISHER, DIRECTOR, EDUCATION TECHNOLOGY SUPPORT CENTER, EDUCATION SERVICE DISTRICT 105; AND TOM W. SLOAN, DELAWARE STATE LIBRARIAN

Ms. ROBERTS. Thank you, Chairman Bliley.

Chairman BLILEY. Dr. Roberts? We may be on the cutting edge of technology, but this room has a very poor sound system, and you need to bring that microphone as close to you as you can.

Ms. ROBERTS. Okay.

Chairman BLILEY. Thank you.

Ms. ROBERTS. Chairman Goodling, Chairman Bliley, and distinguished members of the Commerce and Education Committees, I am pleased to be here this morning on behalf of Secretary Riley to discuss the Federal investment in educational technology. I would like to submit my written testimony for the record, and in the brief time available, focus on several major points.

For almost two decades, I have examined the role of technology in teaching and learning, first with your congressional Office of Technology Assessment, and now with the Office of Educational Technology at the U.S. Department of Education. Like many of the members and panelists here today, I've seen tremendous advances in the development of software and applications for education. I personally have visited hundreds of schools and talked with teachers, students, parents, elected officials, and community leaders who know what technology can do to enhance learning, and who have worked to bring it to the classrooms in their communities.

I have seen the power of technology teachers can harness as they prepare students for the next generation.

In my remarks today, I want to just emphasize two basic reasons why a strong national investment in technology is so critical today.

First, we need to make sure that our students are prepared to compete and succeed in the information age. You know the statistics, you hear from the companies, you read the newspapers. This is an issue of national importance. It demands a national investment.

This administration has worked hard to help schools and communities bring technology to their students. That is why we have worked with Congress, and I believe on truly a bipartisan basis, to develop the interrelated and focused initiatives that require accountability; partnerships with high-tech companies, local businesses and governments; careful evaluation; and most importantly commitment by local districts.

I want to highlight the Technology Literacy Challenge Fund, which, as you know, provides funds to States and then to school districts to truly integrate technology in their instructional programs. The important thing about the Technology Fund is that it has truly invested the States and local districts in planning, in evaluation, in thoughtful use of very limited resources. And we are working closely with the States to help them design the evaluation tools and to monitor their progress and to work with them to help identify the best practices that can be used by teachers and students across America. That's why we've worked with States to create an evaluation guide. That's why we're doing something very new in this program, which is to monitor online with States the progress that we're making.

I know personally that the Technology Fund is making a tremendous difference. I read the abstracts from all of the State grants, and I visit the schools. For example, I know that high school teachers in the Riverside Beaver School District are now using technology because of our funds. Similarly, all of the middle school teachers in Ohio have benefited tremendously, and the elementary school teachers in Washington State, particularly teachers who didn't have this technology, teachers whose school districts didn't have the capacity, are now doing things they never dreamed possible.

The Technology Innovation Challenge Grants applications are developed with the private sector. The level of the partners in the consortia is just unbelievable to us, and I have provided you data in my testimony on that.

But I want to get to my second point. Because I think that the programs that we've highlighted and the programs that support technology are doing things that are very important—teacher training, curriculum development, really integrating the technology. This is not an easy task. But what I want to emphasize for you today is that these learning resources need to be made available to every student, rich and poor, urban and rural. As you rightly pointed out, we are facing a severe digital divide. The numbers are compelling. I am thrilled that we have gotten technology to the door of our schools and into about a quarter of our classrooms, I can tell you quite frankly that in our poorest school and in our poorest communities, the numbers don't even meet that quarter percentage. It's more like 14 percent. It's certainly a long way to go. These technologies will not make a difference unless they're in the hands of teachers and kids.

I strongly support Secretary Riley's call for an end to the technological inequities, what we call the digital divide. I have to tell you I've worked on education and technology policy for almost 20 years now, and I think one of the best ways to overcome this digital divide is, in fact, the E-rate. The E-rate discounts will, for the first time, enable schools and libraries to place technology at the fingertips of all children by providing affordable telecommunications. I cannot tell you how important "affordable" is in all of this. I cannot tell you how many school districts and teachers and principals have said to me that they cannot afford telecommunications otherwise. Unfortunately, there have been criticisms of the E-rate in recent months, but there are over 30,000 applications and 30,000 school districts, libraries, and States who have invested enormous time and money and seriously planned for the E-rate discounts.

In Pennsylvania, Congressman Goodling, 71 percent of the school districts applied for the E-rate, due in part to the efforts of the State Education Agency, the Governor's office, and the utilities commission working together so that they could get Pennsylvania schools first in line for these E-rate discounts. They understood how important the E-rate is. And in Virginia, 81 percent of the school districts—that's incredible—81 percent of the school districts in Virginia have applied for the E-rate.

So I think we can fix whatever problems are there, but we've got to go forward. We can address the accountability issues, but I want to emphasize that this program has the potential to positively impact every American, because it is available to all public and private schools and all libraries.

In conclusion, educational technology is not a choice in the 21st century. It is a necessity. The United States is now in the midst of a tremendous economic and social change. Computers and information technologies are transforming nearly every aspect of American life. Continued success as a Nation will depend upon providing our children with the skills and knowledge necessary for high-technology work and informed citizenship. There are some who criticize the use of technology in our schools.

Chairman BLILEY. Doctor, could you?

Ms. ROBERTS. The irony is that many of those who offer this criticism already have access to computers and the preparation to participate fully. As Secretary Riley has said, the issue is not technology; it's about opportunity for our children. And technology is one part, an important part, of the overall investment that we as a Nation need to make in education. We need to continue to leverage every resource, especially the efforts of the private sector to accomplish these important goals.

Thank you very much.

[The prepared statement of Linda Roberts follows:]

PREPARED STATEMENT OF LINDA ROBERTS, DIRECTOR, OFFICE OF EDUCATION TECHNOLOGY AND SPECIAL ADVISOR TO THE SECRETARY ON TECHNOLOGY, U.S. DEPARTMENT OF EDUCATION

Chairman Goodling, Chairman Bliley, and distinguished Members of the Commerce and Education Committees:

I am pleased to be here this morning on behalf of Secretary Riley to discuss the federal investment in education technology. For almost two decades, I have examined the role of technology in teaching and learning—first with the Congressional Office of Technology Assessment and now directing the Office of Educational Technology at the U.S. Department of Education.

Like many of the Members and panelists here today, I have seen tremendous advances in the development of software and applications for education. I have visited hundreds of schools and talked with teachers, students, parents, elected officials and community leaders who know what technology can do to enhance learning and who have worked to bring it to classrooms in their communities. I have seen the power of technology for teachers as they prepare students for the next generation.

We know from research and from reviewing programs around the country, that there are significant links between computer-assisted instruction and enhanced academic achievement. Students with access to these technologies have shown better organizational and problem-solving skills when compared with students who do not have access to these technologies. Perhaps even more important, research shows that students in schools that integrate technology into the traditional curriculum have higher attendance and lower dropout rates—which leads to greater academic success. A recent study by the City University of New York demonstrates that the use of computers is an especially effective way to improve learning and education opportunities for at-risk students.

Technology in the classroom can make teachers more effective. It allows them to spend more individualized time with students, to communicate with each other and be exposed to new and exciting methods of teaching, and to communicate more frequently with parents about their children. More importantly, this also enables students to advance at their own pace utilizing technology as teachers work with other students to overcome difficulties.

In my remarks before you today, I want to emphasize two basic reasons why a strong national investment in educational technology is so critical.

First, we need to make sure that our students are prepared to compete and succeed in this information age. By the year 2000, 60% of all jobs will require high-tech skills. According to the Bureau of Labor Statistics, it is estimated that there will be a 70% growth in computer and technology related jobs by 2005. We read news stories about the shortage that already exists for workers with high technology skills. This is an issue of national importance that demands a national investment. Furthermore, we all realize that virtually every job in America involves an understanding of basic technology that was unknown when I was in school.

This Administration has worked hard to help local schools and communities bring technology to their students. That is why we have worked with Congress to develop targeted and interrelated initiatives that require accountability, partnerships with local businesses and governments, thorough evaluations, and commitment by local communities.

Let me briefly summarize the primary education technology initiatives across the federal government. (See Attachment).

First, the Technology Literacy Challenge Fund provides funds to States to support the integration of technology into school instructional programs. The awards are allocated to the States through a formula. State-wide competitions are then held within the States with 95% of the funds going to school districts. States must develop a state-wide technology plan. This has led to coordinated efforts within the States to integrate technology throughout the curriculum. In Spring 1999, the States will be providing data on their technology goals, financing plans, and evaluation. To assist them with the evaluation, we have developed and distributed, *An Educator's Guide to Evaluating the Use of Technology in Schools and Classrooms,* which will help ensure that local communities maximize the resources they have available.

Let me give you some brief examples. In the Riverside Beaver School District in Pennsylvania, a Challenge Fund grant enabled all of the district high school teachers to participate in professional development activities over the course of one year. This, in turn, has enabled those teachers to effectively integrate technology throughout the high school curriculum, and to help their students reach higher levels of achievement. In Ohio, the Challenge Fund supports work on the State's priority of training all middle schools teachers and equipping each classroom with five new computers. And, in New Jersey, the Fund has accelerated the full benefits of education technology to all schools so that they can implement New Jersey's Core Curriculum Content Standards.

Second, the Technology Innovation Challenge Grants provides five-year development and demonstration grants to local education agencies that have a consortium of community partners. Over the past three years, we have awarded grants to 62 school districts in 33 States. These grants represent 551 school partners, 284 businesses, 140 colleges and universities, and 375 community organizations and government agencies. The importance of partnership is further demonstrated by the matching commitments. To date, the matching commitments total over $928 million, with the federal support of $282 million. Seventy-seven percent of the funds come from non-federal sources.

An example of how Challenge Grants are being used to benefit local schools and communities is the Virtual High School Project in Massachusetts, which involves twenty high schools from across the United States. Together, these schools are developing web-based courses in areas such as literature, biotechnology, the environment and the arts, that will significantly enrich their curriculum. This model has already begun to generate interest from other high schools across the country.

The third program is Star Schools, which provides grants to telecommunications partnerships supporting distance learning that helps bring quality educational resources to rural, remote and poor schools.

Let me briefly mention two additional programs run by other federal agencies. The Department of Commerce's Telecommunications and Information Assistance Program provides grants to a variety of applicants (government, schools, libraries, non-profits, and others) to support projects that improve the quality of, and the public's access to cultural, education, and training resources; reduce the cost, improve the quality, and/or increase the accessibility of health care and public health services; promote responsive public safety services; improve the effectiveness and efficiency of government services; and foster communication, resource-sharing, and economic development within communities. The U.S. Department of Agriculture Distance Learning and Telemedicine Loans and Grants provide federal telecommunications loans and grants to improve education and health services in rural America by providing support for equipment.

Each one of these programs that I have mentioned serves a very distinct role. Together, these five programs total $601 million per year. The true value of this investment is that it serves as a catalyst for the significant investment it leverages across the country. The private sector, State and local governments, universities, non-profits and other community based organizations all have become essential partners in educational technology because of these federal efforts.

You may hear about additional federal programs that support technology. Let me caution that while these may indeed include technology components, technology is not their major function. For example, the primary purpose of Title I is to support teachers in disadvantaged schools, and only a small part of Title I funds are used for technology. To the extent that technology expands the ability of Title I teachers to serve their students, it is an investment we should encourage.

In summary, our limited federal role provides leadership for helping our nation and our students prepare for the future. Each of these programs helps us achieve the four critical goals of our national education technology plan. This comprehensive plan, which was developed with the guidance of education technology leaders from across the nation, focuses on four goals that will prepare our students for success. These four goals are:

1. All teachers in the nation will have the training and support they need to help all students learn through computers and the information superhighway;
2. All teachers and students will have modem computers in their classrooms;
3. Every classroom will be connected to the information superhighway; and
4. Effective and engaging software and online resources will be an integral part of every curriculum.

The second point I want to emphasize for you today is that these learning technologies need to be made available to every student—rich and poor, urban and rural.

A recently released Department of Commerce study, confirms that we are facing a severe "digital divide"—a gap between those who have access to computers and the Internet—and those who do not. The figures show that the divide is drawn on racial and economic lines. For example, while 41% of white Americans own a computer, only 19% of African Americans or Hispanics own computers. Households earning more than $75,000 have more than 75% computer ownership, while households with incomes under $10,000 have 11% or less computer ownership.

Secretary Riley recently described the application of technology in our nation's schools as "a tale of two worlds." One is a world of families and communities that have the best in education technology and are reaping the benefits. The other world is one where the use of technology to strengthen educational achievement is often little more than a dream. We need to continue to strengthen our national commitment to end this disparity if educational opportunity for all is to be a reality. I strongly support Secretary Riley's call for an end to technological inequity—the digital divide.

One of the best ways I know to achieve this is the E-Rate. As you know, the E-Rate provides significantly discounted telecommunications services for schools and libraries. These discounts will, for the first time, enable schools and libraries to place technology at the fingertips of all children by providing affordable telecommunications. The E-Rate helps the neediest schools most by providing them with the largest discounts.

Unfortunately, there have been criticisms of the E-Rate in recent months. As you consider the E-Rate, I would ask you to keep a few things in mind. There are 30,000 applicants who have invested time and money planning for the E-Rate discounts so that they can maximize educational benefits for the students they serve. The FCC continues to work hard to address issues of accountability raised by Congress. This program has the potential to positively impact every American because it is available to *all* schools and libraries.

Let me give you one example of what will happen if the E-Rate funds which the schools are waiting for are not delivered as promised. In Virginia, the Superintendent for the Nelson County Public Schools has said that they are counting on the E-Rate and the 70% discount that would be provided to this small, rural county. He stated, "the district would wait three to five years to compensate for what the E-Rate has promised." Without the critical support from the E-Rate discounts, no classrooms in the county will be able to afford Internet access.

In conclusion, education technology is not a choice in the 21st century, it is a necessity. The United States is now in the midst of tremendous economic and social change. Computers and information technologies are transforming nearly every aspect of American life. Continued success as a nation will depend upon providing our children with the skills and knowledge necessary for high-technology work and informed citizenship.

There are some who criticize the use of technology in our schools. The irony is that many of those who offer this criticism already have access to computers and the preparation to participate fully in today's information age. As Secretary Riley has said, the issue is not technology, it is about opportunity for our children. Technology is one part—an important part of an overall investment that we as a nation must make in education. We need to continue to leverage every resource, especially the efforts of the private sector to accomplish these important goals. Education is, as Secretary Riley has said, a local function, a state responsibility and a national priority for everyone.

GUIDE TO FEDERAL INVESTMENT IN EDUCATION TECHNOLOGY

Program	Agency	Description	Recipient	FY98 Funds
E-Rate	FCC	Provides discounted telecommunications services (telephone access, INTERNET access, inside wiring) to schools and libraries. The deepest discounts are provided to the poorest schools and libraries.	Universal; All schools (public and private)/districts/states eligible.	$1.3 billion

GUIDE TO FEDERAL INVESTMENT IN EDUCATION TECHNOLOGY—Continued

Program	Agency	Description	Recipient	FY98 Funds
Technology Literacy Challenge Fund (TLCF).	EDUCATION	Provides funds to the states via formula to support the integration of technology into school instructional programs. The states run competitions based upon their priorities.	All states via formula, then competed w/I state.	$425 million
Technology Innovation Challenge Grants (TICG).	EDUCATION	Provides 5-year development and demonstration grants to local education agencies that have a consortium of community partners.	Competitive grants	$106 million
Star Schools	EDUCATION	Provides grants to telecommunications partnerships supporting distance learning.	Competitive grants	$34 million
Telecommunications and Information Infrastructure Assistance Program (TIIAP).	COMMERCE	Provides matching grants to state/local/tribal governments; non-profit health care providers and public health institutions; schools; libraries; museums; colleges; universities; public safety providers; non-profit community-based organizations. TIIAP supports projects that improve the quality of, and the public's access to cultural, education, and training resources; reduce the cost, improve the quality, and/or increase the accessibility of health care and public health services; promote responsive public safety services; improve the effectiveness and efficiency of government services; and foster communication, resource-sharing, and economic development within communities.	Competitive grants	$20 million
Distance Learning and Telemedicine Loans and Grants (DLT).	USDA	Provides federal telecommunications loans and grants to improve education and health services in rural America. This program primarily funds equipment.	Competitive grant and loans.	$16 million

Chairman BLILEY. Thank you, Doctor.

We will now hear from Dr. Carlotta C. Joyner, Director of Education and Employment Issues, U.S. General Accounting Office.

Dr. Joyner.

STATEMENT OF CARLOTTA C. JOYNER

Ms. JOYNER. Thank you, Chairman Bliley, Chairman Goodling, and members of the committees.

I am very pleased to be here today to describe the results of our work to date on Federal programs that can be used to fund telecommunications and information technology for public and private elementary and secondary schools and libraries.

By telecommunications and information technology, we mean services and products, such as telephone and Internet access, computer hardware, software, and wiring, and teacher training in the use of these services and products. The Nation's school districts and public libraries are increasingly investing in this kind of technology, but, as you know, the cost is high.

The Federal Government support for these technology investment efforts has included multiple Federal programs, administered by several different agencies. Because of the number of programs and concern over whether there might be a lack of coordination and monitoring, you asked that we conduct a comprehensive review of programs created or facilitated by the Federal Government that could be used to fund these initiatives. Although our larger review will not be completed until the summer of 1999, you asked that we address three general areas in our statement today. The first is what Federal programs are available to provide Federal or private funding for libraries and elementary and secondary schools for this technology, and in fiscal year 1998, what was the funding level for these programs? Second, what information is available about the extent to which funds were actually used for technology? And,

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third, what is the authorizing statute or legal authority for these programs to provide funding?

In summary, our work to date suggests that at least 27 Federal programs provide funding that can be used to purchase this technology for schools or libraries. For example, four of the programs specifically target technology funding to schools or libraries. Three of these, administered by the Department of Education, have a combined fiscal year 1998 funding level of $565 million.

The other program, the Universal Service Discount—the E-rate—has a funding level of $1.925 billion for the first funding period, which is the 18 months beginning in January 1998. This program allows discounts to be provided to eligible schools or libraries for telecommunications services, Internet access, or internal connections. However, no discounts have yet been funded.

The remaining 23 programs do not specifically target technology for schools or libraries, but they can be used for this purpose. Sixteen of these programs target schools or libraries, but provide funds that can be used for other purposes as well as technology, purposes such as development and implementation of comprehensive education reform plans through the Goals 2000 program. Four other programs target technology, but not exclusively for schools or libraries. And example of this would be the Telecommunications and Information Infrastructure Assistance Program, or TIIAP. Other recipients that can receive funds through programs in this category include universities and colleges, non-profit groups, social service organizations.

The other three programs do not target funds either to schools or libraries as recipients or technology as a program purpose, but funds may go to schools or libraries and may be used for technology. An example here is a program through the National Endowment for Humanities that allows funds to be used for technology for humanities-related purposes and instruction.

For fiscal year 1998, the total funding levels for these more broadly targeted programs ranged per program from $905,000 to almost $7.4 billion per program. But limited information is available on the amounts actually used for technology. Recipients of these funds are not always required to provide detailed budgets or report expenditures in a way that would capture that information.

Regarding your third question, each of these programs has statutory authority to provide funding. Some statutes specifically authorize technology or telecommunications programs. Others have authorization that is broad enough to allow these uses.

This concludes my prepared statement. I'd be pleased to answer any other questions you might have.

[The prepared statement of Carlotta C. Joyner follows:]

PREPARED STATEMENT OF CARLOTTA C. JOYNER, DIRECTOR, EDUCATION AND EMPLOYMENT ISSUES, HEALTH, EDUCATION, AND HUMAN SERVICES DIVISION, GAO

Messrs. Chairmen and Members of the Committees:

We are pleased to be here today to discuss the results of our work to date on federal programs that can be used to fund telecommunications and information technology for public and private elementary and secondary schools (grades K through 12) and public libraries. By "telecommunications and information technology," we mean services and products such as telephone and Internet access; computer hardware, software, and wiring; and teacher training in the use of these services and products.

The nation's school districts and public libraries are increasingly investing in technology to improve education, communication, and the flow of information. For example, between 1994 and 1997 the percentage of public schools with access to the Internet rose from 35 percent to 78 percent. But the cost of this technology is high. One market research organization, Quality Education Data, reported that public schools spent an estimated $4.3 billion on technology in school year 1996-97 and projected they would spend $5.2 billion in school year 1997-98. A 1996 RAND study estimated the cost of providing technology-rich learning environments in all schools at between $10 billion and $20 billion per year.

The federal government has supported these technology investment efforts of libraries and schools in multiple ways. For example, in a May 1998 report, we noted that the *Catalog of Federal Domestic Assistance* (CFDA)[1] describes at least 40 federal programs that appear to provide funding assistance that might be used for these purposes.[2] Because of the number of programs and concern over whether there is a lack of coordination and monitoring among them, you asked that we conduct a comprehensive review of programs created or facilitated by the federal government that can be used to fund schools' or libraries' technology initiatives. More specifically, you asked us to (1) list these programs; (2) describe specific features of each of them, such as the federal administrative costs, number of federally funded full-time- equivalent (FTE) positions allocated to each program, the procedures used to award the funding, total program funding in fiscal year 1998 and estimated amount of funding used for technology in fiscal years 1996, 1997, and 1998, and the authorizing statute or legal authority to provide such funding; (3) describe the potential for duplication, as seen in the targeted purposes and recipients for each program; (4) discuss how the Government Performance and Results Act of 1993 can be used to coordinate and reduce duplication in programs such as these; (5) describe federal efforts to coordinate federal education and technology programs; and (6) provide any information available regarding waste, fraud, or abuse in each program and efforts to eliminate such problems.

While our review will not be completed until the summer of 1999, you asked that we identify at this hearing (1) what federal programs are available to provide federal or private funding for libraries and elementary and secondary schools for telecommunications and information technology and, for each, the fiscal year 1998 funding level; (2) what information is available about the portion of those funds that was used for technology; and (3) what the authorizing statute or legal authority is for each program to provide such funding.

To answer these questions, we reviewed the CFDA, Department of Education documents, Congressional Research Service publications, and our previous work. We also contacted officials in each of the federal agencies and departments to obtain more detailed information about each program. This approach enabled us to make a more definitive assessment of whether a program would in fact allow funds to be provided for technology to schools or libraries, as we defined them. By "schools," we mean public or private elementary and secondary schools (grades K through 12). By "libraries," we mean public libraries, elementary and secondary school libraries, and private libraries that are not operated for profit; we did not include libraries affiliated with colleges and universities. Funds may be provided to state education agencies and school districts or to individual schools directly.

In summary, our work to date suggests that at least 27 programs provide funding that may be used to purchase telecommunications and information technology for schools or libraries (see appendix). For example, four of the programs specifically target technology funding to schools or libraries. Three of these have a combined fiscal year 1998 funding level totaling $565 million. The other program—the universal service discount for schools and libraries, also called the "e-rate"—has a funding level of $1.925 billion for the first funding period (the 18-month period beginning January 1998). Under this program, discounts can be provided to eligible schools and libraries for telecommunication services, Internet access, and internal connections; however, no discounts have yet been funded. The remaining 23 programs do not specifically target technology for schools or libraries but can be used for this purpose. Some of these programs target schools or libraries but provide funds that can be used for other purposes as well as technology. Others target technology but not exclusively schools or libraries. Others do not target funds either to schools or libraries as recipients or technology as a program purpose, but funds may go to schools or libraries and may be used for technology. Except for programs targeted both to technology and to schools or libraries, limited information is available on the amounts spent for technology. The fiscal year 1998 funding levels for the more broadly targeted programs ranged from $905,000 to nearly $7.4 billion. Among the programs that we identified, more are available to schools than to libraries. All the federal programs are authorized by law. Some statutes specifically authorize technology or telecommunications programs; others have authorization broad enough to allow these uses.

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[1] The CFDA is a governmentwide compendium of federal programs, projects, services, and activities that provides assistance and benefits. Coordinated by the Office of Management and Budget and compiled by the General Services Administration, the CFDA contains information, both financial and nonfinancial, about programs administered by federal departments and agencies.

[2] *Telecommunications: Court Challenges to FCC's Universal Service Order and Federal Support for Telecommunications for Schools or Libraries* (GAO/RCED/OGC-98-172R, May 7, 1998).

BACKGROUND

In recent years, much discussion has focused on the increased use of computers, networks, and connections to the Internet to augment communication and learning. The number of computers per student has increased from 1 for every 125 students in school year 1983-84 to 1 for every 9 students in school year 1996-97. In 1997, 27 percent of classrooms, computer labs, and library/media centers were connected to the Internet, nine times greater than the percentage in 1994.

Schools have used a variety of funding sources to establish and support their technology programs. Some rely on state funding, while others use local tax moneys. Some private funding is also available, and federal funding sources also play a role in supporting technology. Our 1998 report on five school districts found that each used a combination of sources to fund its technology programs.[3] For example, the Seattle Public Schools in Seattle, Washington, received 10 percent of their funding for technology from federal programs, 67 percent from a local capital levy, 16 percent from the district operating budget, about 4 percent from state programs, and 3 percent from private sources. On the other hand, the Manchester School District in Manchester, New Hampshire, obtained 78 percent of its technology funding from a federal Innovation Challenge Grant, 18 percent from the district operating budget, and 3 percent from private sources.

In addition to funding provided by state, local, and federal sources, assistance for technology has also been made available to schools and libraries through the Federal Communications Commission's (FCC) e-rate program, which is funded by mandatory contributions from interstate telecommunications and other service providers.

AT LEAST 27 FEDERAL PROGRAMS MAY PROVIDE FUNDS FOR TELECOMMUNICATIONS AND INFORMATION TECHNOLOGY FOR SCHOOLS AND LIBRARIES

At least 27 federal programs may provide funding for technology to elementary and secondary schools and libraries.[4] Three of these programs, administered by the Department of Education, specifically provide funding for technology to schools or libraries. These three programs provided $565 million in 1998. A fourth program—the e-rate—will provide discounts to schools and libraries for telecommunications services, Internet access, and internal connections.[5] The remaining 23 programs, administered by five agencies and departments, do not exclusively fund technology or target their funds to just schools or libraries. Funds from these programs may also be used for a wide range of other activities, such as development and implementation of comprehensive education reform plans through the Goals 2000 program. Other recipients may include universities and colleges, social service organizations, nonprofit groups, and Native American tribal organizations. The 1998 funding levels for these programs ranged from $905,000 to almost $7.4 billion. Funding mechanisms include both formula and competitive grants. The 27 programs are described in the appendix and summarized in table 1 and the following narrative.[6]

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[3] *School Technology: Five School Districts' Experiences in Funding Technology Programs* (GAO/HEHS-98-35, Jan. 29, 1998).

[4] We also identified a few other programs that may provide funds for technology for schools or libraries, but we have not yet obtained enough detailed information to determine conclusively whether they fit our criteria for including them on this list.

[5] Not more than $1.925 billion will be spent for the schools and libraries support program during the 18-month period beginning January 1998.

[6] We also identified several federal programs that provide technology resources, such as educational materials, technical assistance, and teacher training, to schools or libraries but do not provide funding. For example, the National Aeronautics and Space Administration (NASA) does not provide funding to schools or libraries, but its Aerospace Education Services Program conducts workshops with teachers to show them how to enhance their mathematics and science programs with on-line NASA programs. The funding for the Aerospace Education Services Program was $5.6 million in 1998. In addition, the Department of Education's six Regional Technical

Table 1: Categories of Programs

Program purpose	Recipients	
	Schools or libraries targeted	Schools and libraries allowed but not exclusively targeted
Targets technology	Category I: targets schools or libraries and technology (N=4).	Category III: targets technology but not schools or libraries (N=4)
Allows technology but does not target it	Category II: targets schools or libraries but not technology (N=16).	Category IV: Does not target schools or libraries or technology (N=3)

Category I: Programs That Target Technology for Schools or Libraries

Three Department of Education programs and one FCC program target technology for schools or libraries. The three Department of Education programs provided a total of about $565 million in 1998 to support technology specifically for schools or libraries. They are the Technology Literacy Challenge Fund, with a 1998 funding level of $425 million; the Technology Innovation Challenge Grants Program, at $106 million; and the Star Schools Program, at $34 million. The largest program—the Technology Literacy Challenge Fund—provides resources to states to enable schools to integrate technology into school curricula. The states distribute the funds to school districts competitively for a broad range of technology purchases, such as computer hardware and software, telecommunications services, and professional development. Technology Innovation Challenge Grants are competitive grants to support school district technology efforts, and Star Schools supports programs that provide increased access to education services such as distance learning.

One of the largest funding initiatives we identified is FCC's e-rate program. The general purpose of this program is to improve the access of schools and libraries to modern telecommunications services. It was added by the Telecommunications Act of 1996, which, among other things, extended universal service support to eligible schools and libraries and also specified that every telecommunications carrier that provides interstate telecommunications services, unless exempted by FCC, must contribute to a universal service fund.[7] In its May 1997 universal service order, FCC adopted a recommendation that eligible schools and libraries may receive discounts of between 20 to 90 percent on telecommunications services, Internet access, and internal connections.[8] Schools and libraries located in rural and low-income areas will receive the highest discounts from the fund. Schools and libraries will receive only discounts—no direct funding from the program. The universal service fund then compensates the schools' and libraries' vendors for the amount of the discounts. Funding for the e-rate is capped at $2.25 billion annually. Schools and libraries that submitted applications for discounts through April 1998 requested about $2 billion in discounts. In June 1998, however, FCC significantly modified the program, extending the first funding period to 18 months and adjusting the amounts that could be collected and spent during 1998 and the first 6 months of 1999 to $1.925 billion. As of September 16, 1998, no schools or libraries had yet received discounts through the program.

Category II: Programs That Target Schools or Libraries but Do Not Target Technology as a Use for the Funds

Sixteen programs available only to schools or libraries do not target technology specifically but allow recipients to use funds for technology. The Department of Education administers 13 of the programs, and the Institute of Museum and Library Services administers 3. In 1998, the total program funding levels ranged from $905,000 to almost $7.4 billion, but in many cases, officials were not able to provide estimates of the amount spent for technology. For example, through the Twenty-First Century Community Learning Centers Program administered by the Department of Education, rural and inner-city public elementary and secondary schools or a consortia of such schools may compete for grants to establish school-based, community learning programs. Among the 13 activities that the program may fund are literacy education and children's day care services along with telecommunications and technology education programs. A Department of Education official said that

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Support and Professional Development Consortia, which had a budget of $10 million in 1998, provided technical support and professional development by providing teacher training for technology programs.

[7] Traditionally, "universal service" has meant providing residential customers with affordable, nationwide access to basic telephone service.

[8] FCC's universal service order has been challenged in federal court. *Texas Office of Public Utility Counsel v. FCC*, No. 97-60421 (5th Cir. filed June 25, 1997).

the agency knows that some of the funding is used to support technology, but it does not require schools to report how much of the grants were spent for each activity. For some programs, however, the amount spent on technology can be identified. For example, of the almost $6 million available through the Migrant Coordination Program, $3.3 million was awarded for six technology projects to develop innovative uses of technology for migrant students.

Category III: Programs That Target Technology but Do Not Target Schools or Libraries

For four programs in three agencies—the Departments of Agriculture, Commerce, and Education—funds are targeted to technology uses through competitive grants, and schools or libraries—among other organizations—are eligible to apply. Program funding levels for 1998 ranged from $12.5 million to more than $34 million. For three of the programs, however, only a small portion of the funds is awarded to schools or libraries, according to program officials. For example, the Department of Commerce's Telecommunications and Information Infrastructure Assistance Program awarded nearly $21 million in 1997 grants for 55 information infrastructure demonstration projects. Of that amount, about $2.4 million was awarded for six projects for libraries or elementary or secondary school initiatives. Other recipients included a fire protection district in Colorado that established remote command sites to manage emergency equipment and personnel and the Circuit Court of Cook County Illinois, which established a children's advocacy network. According to a Department of Commerce official, the average grant was about $350,000.

Category IV: Programs That Do Not Target Schools or Libraries and Do Not Target Technology

Three programs do not target funds either to schools or libraries as recipients or to technology as a program purpose, but funds may go to schools or libraries and may be used for technology. Programs in this category are administered by the Department of Education and the National Endowment for the Humanities (NEH). Funding levels in 1998 ranged from $3 million to $6 million. For example the NEH Education, Development, and Demonstration Program provided over $4 million in competitive grants. Of that amount, an agency official estimated that about 65 percent was awarded to elementary and secondary schools for technology projects, such as development of CD-ROM and websites, with humanities content. Other grant recipients in this category include universities and colleges, state and local governments, and nonprofit organizations.

INFORMATION ON AMOUNTS SPENT ON TECHNOLOGY IS NOT ALWAYS AVAILABLE

We considered funding for federal programs that target technology to be used entirely for technology products or services. For programs that do not target technology but allow funds to be used for technology, it is more difficult to get information on how much of the funding is actually spent on technology. Recipients of these funds are not always required to prepare detailed budgets or report expenditures in a way that would capture that information. We identified two types of funding mechanisms in this category: (1) competitive grant programs, in which state education agencies, school districts, or other entities may compete for funding and (2) formula grant programs that allocate funds to state education agencies, school districts, or other entities through a formula based on specific criteria such as the number of students in the state or the number of students below the poverty level. Some competitive grants require recipients to develop and submit a detailed budget listing planned expenditures. In some cases, officials told us that they could provide an estimate of funds spent on technology by using this budget information. However, several officials overseeing formula grants told us that grant recipients were not required to report expenditures and that these data might be available only at the state level.

For example, one such program, the Department of Education's Title I program, is designed to provide financial assistance to local education agencies for services to educationally disadvantaged students to improve academic performance. Total funding was almost $7.4 billion in fiscal year 1998. According to a program official, schools have used a portion of their Title I funds, which are awarded according to a formula, to acquire and apply technology under the broad authority of this legislation. However, because the Department does not require states to report exactly how their districts spend their Title I funds each year, it is not known exactly what amount or percentage of these funds was spent for technology in recent years. The Department has contracted for a study, scheduled for completion in 1999, that will provide information about state and school district Title I expenditures, including technology.

PROGRAMS' AUTHORIZING STATUTES OR LEGAL AUTHORITY

All the federal programs we have identified as providing funds to schools and libraries for technology are authorized by law. Some statutes specifically authorize technology programs. In many other cases, the Congress has authorized agencies to carry out activities or provide financial assistance to schools and libraries under programs broad enough to be used for technology. One program, the Telecommunications and Information Infrastructure Assistance Program, is authorized primarily by appropriations acts. The Congress, in appropriations acts, has expanded the authority of the Department of Commerce under the Communications Act of 1934 to construct public telecommunications facilities. The appropriations acts specifically permit funds to be used for planning and constructing telecommunications networks for schools, libraries, and other social services.

This concludes my prepared statement. I would be pleased to respond to any questions you or Members of the Committees may have.

APPENDIX

FEDERAL FUNDING PROGRAMS FOR TECHNOLOGY

Table I.1: Programs That Target Technology for Schools or libraries

Program	Authorizing statute or legal authority	1998 funding level[1]	Comments
Department of Education			
1. Technology Innovation Challenge Grants.	Elementary and Secondary Education Act of 1965, as amended, title III, part A, section 3136, 20 U.S.C. 6846.	$106,000.000	Grants are for 5-year technology development and demonstration projects and are available to local education agencies that have a consortium of community partners that includes at least one local education agency with a high percentage or number of children living below the poverty level. These grants focus on professional development.
2. Technology Literacy Challenge Fund Grants.	Elementary and Secondary Education Act of 1965, as amended, title III, part A, sections 3131-3137, 20 U.S.C. 6841-6847.	$425,000.000	This program encourages the integration of technology into school instructional programs. Funds for this program are allocated to all states on the basis of their Title I funding, with a minimum funding level of $2.1 million for an individual state in 1998. The state runs competitions based on state priorities, and 95 percent of the funds go to school districts. This fund can be used for a broad range of activities related to technology, including computer hardware and software, professional development, and telecommunication services.
3. Star Schools Program.	Elementary and Secondary Education Act of 1965, as amended, title III, part B, sections 3201-3210, 20 U.S.C. 6891-6900.	$34,000,000	This program supports the development of distance learning courses for students and resources for teachers. The focus of the program is directed toward underserved populations including the disadvantaged and those with limited English proficiency. Grants are awarded to telecommunication partnerships for a variety of expenditures, including telecommunications equipment, instructional programming, and technical assistance.

FEDERAL FUNDING PROGRAMS FOR TECHNOLOGY—Continued

Table I.1: Programs That Target Technology for Schools or libraries

Program	Authorizing statute or legal authority	1998 funding level [1]	Comments
Federal Communications Commission			
4. Universal Service Discount for Schools and Libraries [e-rate].	Telecommunications Act of 1996, as amended, title I, section 101(a), P.L. 104-104, 47 U.S.C. 254 (h).	$1.925 billion for 18 months beginning January 1998	This program provides discounts to eligible schools and libraries ranging from 20 to 90 percent for telecommunications services, Internet access, and internal connections. The program is funded by mandatory contributions from interstate telecommunications and other service providers.

[1] With the exception of the e-rate program, funding levels shown are the fiscal year 1998 appropriations for a program or allocation of appropriated funds made within a department to specific programs

Table I.2: Programs That Target Schools or Libraries but Do Not Target Technology

Program	Authorizing statute or legal authority	1998 funding level [1]	Comments
Department of Education			
1. Title I Grants to Local Education Agencies.	Elementary and Secondary Education Act of 1965, as amended, title I, part A, sections 1111-1127, 20 U.S.C. 6311-6338	$7.375 billion	Funds are allocated to all states on the basis of the number of children from low-income families. These grants provide additional academic support to help low-achieving children meet state performance standards. The Department of Education is conducting a study of how Title I funds are spent—including expenditures for technology, according to program officials. Results of the study will be available in 1999.
2. Migrant Education, Basic State Grant Program.	Elementary and Secondary Education Act of 1965, as amended, title I, part C, sections 1301-1307, 20 U.S.C. 6391-6397.	$299,475,000	Funds support the special needs of migrant children to help ensure that they have the opportunity to meet the same performance standards that all children are expected to meet.
3. Migrant Education Coordination Program.	Elementary and Secondary Education Act of 1965, as amended, title I, part C, section 1308, 20 U.S.C. 6398.	$5,998,000	Six technology grants, totaling $3.3 million, were awarded to address the problems of disruption, lack of resources, and language difficulty that children of migrant families experience. Very little of the funding is used for technology, according to a program official.
4. Magnet Schools Assistance.	Elementary and Secondary Education Act of 1965, as amended, title V, part A, sections 5101-5113, 20 U.S.C. 7201-7213.	$101,000,000	The purpose of these grants is to support desegregation of public schools. Funds may be used for a variety of activities, including the acquisition of computers and their maintenance and operation—if they are necessary for the conduct of the program and are directly related to improving student skills and knowledge.
5. Eisenhower Professional Development Federal Activities.	Elementary and Secondary Education Act of 1965, as amended, title II, parts A and C, sections 2101, 2102, 2301-2306, 20 U.S.C. 6621, 6622, 6671-6676.	$23,300,000	This program focuses on K-12 teacher education. According to a program official, only one of four portions of the program provides technology funding to schools or libraries, and no new grants were awarded in 1998 for that portion.

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Table I.2: Programs That Target Schools or Libraries but Do Not Target Technology

Program	Authorizing statute or legal authority	1998 funding level [1]	Comments
6. Eisenhower Professional Development State Grants.	Elementary and Secondary Education Act of 1965, as amended, title II, part B, sections 2201-2211, 20 U.S.C. 6641-6651.	$335,000,000	The objective of this program is to improve teaching and learning through high-quality professional development activities in the core academic subjects. Funding is provided to states by formula. According to a program official, some of the funding goes to institutions of higher education, and there is no estimate of how much was spent on technology-related professional development.
7. Javits Gifted and Talented Students Education Program.	Elementary and Secondary Education Act of 1965, as amended, title X, part B, sections 10201-10206, 20 U.S.C. 8031-8036.	$6,500,000	Program provides competitive grants to state and local education agencies and institutions of higher education, and other organizations, to build a national capability to meet the needs of gifted and talented students. An estimated 10 percent of $4 million awarded in grant funding was spent on technology in 1998, according to a program official.
8. Fund for the Improvement of Education.	Elementary and Secondary Education Act of 1965, as amended, title X, part A, sections 10101-10107, 20 U.S.C. 8001-8007.	$108,100,000	Program provides competitive grants to fund nationally significant programs to improve the quality of education. Grants may be awarded to state education agencies, local education agencies, institutions of higher education, and public and private nonprofit organizations and institutions.
9. Goals 2000 State and Local Education Systemic Improvement Grants.	Goals 2000: Educate America Act, as amended, title III, sections 301-319, P.L. 103-227, 20 U.S.C. 5881-5899.	$466,000,000	Formula grants are awarded to all states to develop and implement comprehensive education reform plans at the state, local, and school levels to improve the teaching and learning of all children. States may use their grants to purchase technology.
10. Twenty-First Century Community Learning Centers.	Elementary and Secondary Education Act of 1965, as amended, title X, part I, sections 10901-10907, 20 U.S.C. 8241-8247.	$40,000,000	Competitive grants are awarded to rural and inner-city public K-12 schools, consortia of such schools, or local education agencies to set up school-based learning centers for the entire community. Telecommunications and technology education is one of 13 program activities funded.
11. Bilingual Education Capacity and Demonstration Grants.	Elementary and Secondary Education Act of 1965, as amended, title VII, part A, sections 7101-7161, 20 U.S.C. 7401-7491.	$160,000,000	Program provides grants to local education agencies to fund programs for students with limited English proficiency. According to a program official, technology development is encouraged.
12. Innovative Education Program Strategies.	Elementary and Secondary Education Act of 1965, as amended, title VI, sections 6001-6403, 20 U.S.C. 7301-7373.	$350,000,000	Formula grants are allocated to all state education agencies on the basis of the number of school-aged children. Part of the purpose of the program is to support state efforts to obtain technology as part of a broad program of education reform.
13. Alaska Native Student Enrichment Program.	Elementary and Secondary Education Act of 1965, as amended, title IX, part C, section 9306, 20 U.S.C. 7936.	$905,000	Funds are awarded to Alaska Native organizations or educational entities to develop science and mathematics enrichment programs for Alaska Native students.

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Table I.2: Programs That Target Schools or Libraries but Do Not Target Technology

Program	Authorizing statute or legal authority	1998 funding level[1]	Comments
Institute of Museum and Library Services			
14. National Leadership Grants.	Museum and Library Services Act, as amended, P.L. 94-462, title II, section 262, 20 U.S.C. 9162.	$7,500,000	This program includes three types of competitive grants for libraries for education and training, research and demonstration projects, and preservation of collections, according to a program official. It also includes a fourth competitive grant for museums' and libraries' model projects. An estimated 75 percent of funding was spent on technology-related expenses.
15. Native American and Native Hawaiian Grants.	Museum and Library Services Act, as amended, P.L. 94-462, title II, section 261, 20 U.S.C. 9161.	$2,577,000	This program provides basic formula grants for core library operations as well as competitive grants for training for library staff and specialized projects, according to a program official. An estimated 35 percent of funding was spent on technology-related expenses.
16. State Grants	Museum and Library Services Act, as amended, title II, section 231, P.L. 94-462, 20 U.S.C. 9141	$126,292,000	This program provides formula grants to state library associations on the basis of state population, according to a program official. Funds may be used for network and communication needs as determined by the state entity. An estimated 50 percent of funding was spent on technology related projects.

[1] Funding levels shown are the fiscal year 1998 appropriations for a program or allocation of appropriated funds made within a department to specific programs.

Table I.3: Programs That Target Technology but Do Not Target Schools or Libraries

Program	Authorizing statute or legal authority	1998 funding level[1]	Comments
Department of Agriculture			
1. Distance Learning and Telemedicine Grants.	Federal, Agriculture, Conservation, and Trade Act of 1990, as amended, title XXIII, section 2333, 7 U.S.C. 950aaa-2.	$12,500,000	Awards may be made to a variety of organizations, including educational institutions, libraries, and medical organizations. 1998 awards will be made in September, according to a program official.
Department of Commerce			
2. Public Telecommunications Facilities Planning and Construction.	Communications Act of 1934, as amended, title III, part IV, sections 390-393A, 397-399B, 47 U.S.C. 390-393a, 397-399b; Dept. of Commerce Appropriations Act for Fiscal Year 1997, P.L. 104-208; Dept. of Commerce Appropriations Act for Fiscal Year 1998, P.L. 105-119.	$20,000,000	This program provides funding to upgrade, expand, or create public broadcasting capability, according to a program official. Grants are awarded to organizations including public or noncommercial educational broadcast stations and noncommercial telecommunications entities; nonprofit institutions organized primarily for educational or cultural purposes; and state, local, or Native American tribal governments. About $3 million each year is awarded to educational institutions, most of which goes to universities, according to a program official.

Table I.3: Programs That Target Technology but Do Not Target Schools or Libraries

Program	Authorizing statute or legal authority	1998 funding level[1]	Comments
3. Telecommunications and Information Infrastructure Assistance Program.	Communications Act of 1934, as amended, title III, part IV, sections 390-392, 47 U.S.C. 390-392; Dept. of Commerce Appropriations Act for Fiscal Year 1997, P.L. 104-208; Dept. of Commerce Appropriations Act for Fiscal Year 1998, P.L. 105-119.	$20,000,000	Provides funding for information infrastructure demonstration projects, according to a program official. Grants go to public and nonprofit entities, for example, state and local governments, police and fire departments, community and social service organizations. In 1997, of 55 grants, 6 went to library projects or K-12 education initiatives.
Department of Education			
4. Special Education Technology and Media Services for Individuals With Disabilities.	Individuals With Disabilities Education Act (IDEA), as amended, part B, section 687, 20 U.S.C. 1487.	$34,023,000	Grants are awarded to (1) promote the development, demonstration, and utilization of technology and (2) support education media activities designed to be of educational value to children with disabilities, and other specified media-related activities. Grants go to state and local education agencies, nonprofit organizations, higher education institutions, Native American tribes, tribal organizations, and outlying areas.

[1] Funding levels shown are the fiscal year 1998 appropriations for a program or allocation of appropriated funds made within a department to specific programs.

Table I.4: Programs That Do Not Target Schools or Libraries and Do Not Target Technology

Program	Authorizing statute or legal authority	1998 funding level[1]	Comments Department
National Endowment for the Humanities			
1. Promotion of the Humanities Education, Development, and Demonstration Grants.	National Foundation on the Arts and the Humanities Act of 1965, as amended, sections 2, 7, P.L. 89-209, 20 U.S.C. 951, 956.	$4,730,000	This program provides competitive grants. About 65 percent of the funding went to K-12 schools for technology-related projects such as development of CD-ROM or websites, according to a program official.
2. Promotion of the Humanities Summer Seminars and Institutes.	National Foundation on the Arts and the Humanities Act of 1965, as amended, sections 2, 7, P.L. 89-209, 20 U.S.C. 951, 956.	$6,000,000	This program provides grants to teachers at all grade levels and others to direct or attend training seminars on a variety of humanities-related subjects. According to a program official, an estimated 1 percent was spent on technology-related training for K-12 teachers.
Department of Education			
3. Women's Educational Equity Act Program.	Elementary and Secondary Education Act of 1965, as amended, title V, part B, sections 5201-5208, 20 U.S.C. 7231-7238.	$3,000,000	The primary focus of this program is to promote gender equity through educational opportunities for girls and women. According to a program official, most grants are made to K-12 and higher education institutions and most recipients probably use part of their grant for computer hardware and software.

[1] Funding levels shown are the fiscal year 1998 appropriations for a program or allocation of appropriated funds made within a department to specific programs.

Chairman BLILEY. Thank you very much, Dr. Joyner.

We will now hear from Ms. Jane Prancan, Executive Director, US WEST Foundation. Ms. Prancan.

STATEMENT OF JANE J. PRANCAN

Ms. PRANCAN. Thank you, Chairman Bliley and Chairman Goodling and all of the members of the committee.

I really am happy to be here today representing US WEST and its 14 western and Midwestern States. I've been asked to tell you about one company's experience in educational technology with parents, teachers, and students over the past 5 years. I should say that I'm only going to focus on 5 years specific programs and not all of the things that US WEST does with respect to education.

I wanted to say that 5 years ago, we commissioned a survey to find out how we could help communities. We wanted a program that would meet people's needs, actually meet their needs, and that we could constantly learn from and improve. Our constituents were emphatic. One, they said help us, especially our schools, prepare kids for the future. And two, apply your information technology to our community needs.

Clearly, we couldn't provide everything that people needed to use technology effectively. So, we did something we thought was novel, which was go ask the educators what do you need. And what we heard from them consistently was training. Teach the teachers how to use computers, how to use the Internet, to share resources, gather information, build lesson plans, involve students. In short, use what they already had or what they could get their hands on. We've been pleased that recently there have been studies from the Department of Education, from the CEO forum, Senator Markey, you mentioned it, that training, in fact, is very important for teachers. The first thing we did was create what we call the US WEST Teacher Network, which continues today with the National Education Association, school districts, departments of education, and universities. Our goal was to train 10 percent of the teachers in our 14 States how to use online technology. So, to do that, we tried to reach and equip 1 percent of all of our teachers and ask them to pass it on to 10 of their colleagues. We provided laptop computers and classroom training in Internet skills and skill development to more than 4,000 teachers. They've trained 40,000 more. They continue to tell us how being online has improved their teaching.

So, what did we learn from that teacher network? We learned that getting online was really only the first step. You have to integrate, as some of you've said, you've got to integrate that in information to improve actual classroom learning.

So we created a second program we call Connecting Teachers with Technology. In this program, we give laptop computers, training, and an $8,000 seed grant to teams of four teachers and principals who propose novel ways to use the technology in their classrooms. So far, in this program, we've trained 1,200 educators, who've worked with another 5,000 teachers and 47,000 students. In these classes, they've done everything from developing satellite-sourced field maps for local farmers to documenting and reversing the decline of a local stream and creating community-wide histories on CD ROM. A lot of them have received national recognition for these classroom innovations.

But one of the best things about this program was that many of these efforts reached far beyond the classroom walls, involving parents and other community members. And then we heard from those folks that they wanted to be online.

So the next step was to take training to the communities, to take it to them. We developed a program we called Widening Our World, our WOW program. We outfitted an old van with a mobile computer lab, training materials, which I have copies of, hired instructors, and sent our WOW van on the road. It goes to rural communities, to inner-city neighborhoods, anywhere we could find groups of people who thought the information age had left them behind. Since 1996, this training program has reached 35,000 citizens of all ages. We have 13 vans on the road, and we have endless lists of invitations.

The key learnings from these programs was that if you introduce people to the future, they won't want to go back to the past. In fact, as all of you have pointed out, teachers tell us there is a growing gap between those who have computers outside of the school and those who don't. These are the proverbial have nots. We looked for ways then to put computers at everyone's fingertips permanently.

We also did what most adults do when they need a little computer help: we went to the kids. We've created the US WEST Tech Academy that helps intergenerational teams set up computer labs and training for inner-city neighborhoods and entire rural communities. We give local computer networks, Internet connections, training—again, training for the trainers—and a $15,000 startup grant.

Last winter, we trained 69 teams of two adults and two kids. They went home, set up their own computer labs, and have already trained hundreds of people. The labs are in libraries, in community centers, housing projects, and also in schools that will agree to stay open after the fact. Our inner-city kids are finding that computers put hope in an otherwise hopeless future. Our welfare moms are going back to school, online. Senior citizens are exploring new horizons, and small businesses are developing larger markets.

So what have we learned? Information technology is a great way to equip people with the skills that they're going to need in the online world of the 21st century. We've spent $27.3 million on these projects, and we're really pleased that they've served as seeds for further development and expanded funding.

We hope that each of you would come and visit some of our programs in action. They'll show you how people who care are connecting thousands of other people with the future and how much better communities are for it.

I'd like to leave you with just two things. One is people want technology. They told us that 5 years ago. They told us that again in surveys that we did this spring.

And No. 2, people need training. All of the equipment and connectivity in the world isn't going to mean a thing if folks don't know what to do with it.

Thank you very much.

[The prepared statement of Jane J. Prancan follows:]

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PREPARED STATEMENT OF JANE J. PRANCAN, EXECUTIVE DIRECTOR, U S WEST FOUNDATION

INTRODUCTION

Chairman Bliley, Chairman Goodling, and members of the Education and the Workforce and the Commerce Committees, it is an honor to appear before you today to discuss education technology initiatives that the U S WEST Foundation has funded. The U S WEST Foundation is the philanthropic arm of U S WEST Inc., the regional telecommunications company that provides a full range of telecommunications services—including wireline, wireless PCS, data networking, directory and information services—to more than 25 million customers in 14 western and midwestern states. U S WEST serves a greater number of small and rural communities than any other carrier.

I would like to discuss the evolution of the five programs that U S WEST currently funds to promote educational technology.

BACKGROUND

Five years ago, the leaders of U S WEST and its philanthropic foundation commissioned a survey of the various "publics" we relate to—and serve.

We were looking for some direction, some focus, as we sought to connect our corporate citizenship efforts with the needs of our region and its people. We wanted a program that met people's needs: one that we could commit ourselves to and one we could constantly evaluate, learn from, and improve upon.

In our survey, the answers were clear:

- Help our schools prepare our children for the future; and
- Apply your information technology to our community needs.

We knew that with the dollars we had, we could not provide all of the hardware nor connectivity that is needed to really use technology in effective ways. We wanted to be sure we were not "preaching" to educators about how to do their jobs. However, where we could help was in providing expertise in what we know best: how to use technology.

First, we began working with teachers, looking for ways to help. We found that some schools already had computers, but much of the hardware was not used because nobody knew how to use it.

We chose to emphasize teacher training: Teaching the teachers how to use computers to gather resources, build lesson plans, involve students, and share information and activities with other classrooms—in short, how to use what they already had or what they could get.

We started on this track five years ago. Since then, we have been gratified that subsequent studies by the U.S. Department of Education, the CEO Forum, and others have indicated that teacher training is critical.

1. *U S WEST/National Education Association Teacher Network*

Our first program was the U S WEST Teacher Network, which continues today, in cooperation with the National Education Association, state departments of education and state universities.

Our goal was to train at least 10 percent of the teachers in our 14-state region how to use on-line technology. To reach this goal of 10%, *we equipped and trained one percent* of the teachers in our region and asked each of those teachers to "pass it on" and, in turn, train 10 of their peers.

So far, we have spent more than $12 million to provide laptop computers and classroom training on the use of these computers, access to the Internet, and how to apply resources on the Internet to classroom curricula. We have trained more than 4,000 teachers. Those teachers, in turn, have trained more than 40,000 others, for a total of 45,000 teachers who have come on-line, through U S WEST's efforts.

Teachers continue to send us letters of appreciation—by e-mail, of course—that detail how being on-line has improved their lesson development, classroom teaching, professional interaction, and continuing education. Many have told us they literally did not know how to turn on a computer before they received our training. Today, many of those same teachers are technology leaders in their districts. Some have even become technology coordinators.

What did we learn from our Teacher Network? "Getting on line" is only the first step. You have to *integrate* that skill with all the other skills that are involved in curriculum development.

2. *U S WEST "Connecting Teachers with Technology" Awards*

So in our next program, we created "U S WEST Connecting Teachers with Technology." This program offers four laptop computers, training to individual teams of four educators each and an $8,000 grant for use in advancing classroom technology.

To participate, the teachers had to propose novel and innovative ways of using information technology to improve curriculum development and classroom learning.

As our nationally recognized evaluators looked at the projects, it became clear that principals needed to be involved. We asked that one principal be included on each team. We learned that the principals also appreciated the training, which helped them to better understand the use—and the importance—of technology in the classrooms.

So far in the Connecting Teachers program, we have invested $6.7 million, which has funded 304 teams across U S WEST's 14 states, with a total of 1,216 educators working to improve education via on-line resources. These teams report that they have trained another 5,000 teachers and worked with 47,000 students.

Examples of classroom projects that these teams have created include: developing satellite-sourced field maps for local farmers; documenting and reversing the decline of a local stream; and creating community-wide histories on CD-ROM.

Some teams have received national recognition for their innovations. All have shared their findings with other teachers, to the benefit of thousands of students.

As a corollary to the awards program, we offered $3 million in grant money to school/university partnerships to develop multi-media curricula meeting state and national educational standards, such as the "Wyzit" program, a math curriculum program for fourth-grade students. This program is already being used by schools throughout the West.

What did we learn from the "awards" programs? One of the best outcomes from these programs was that most reached beyond the classrooms to involve parents and other community members. A lot of these people wanted to learn to travel on-line, as well.

3. *U S WEST Widening Our World "WOW" Outreach Training*

So, our third program took the training to the community: our Widening our World or "WOW" program. We outfitted a van with computers and training materials, hired an instructor to drive the van, and went "on the road."

We drove the van to rural communities, inner-city neighborhoods, anywhere we could find a group of small-business people, community leaders, or senior citizens or "junior citizens" who thought the Information Age had left them behind.

We are now helping these people to the get "on-line." Since 1996, we have trained over 35,000 citizens of all ages in our communities throughout our 14 states. Today, we have 13 vans on the road; we receive invitations continually to bring this WOW van program into communities.

What have we learned from the "WOW" program? If you make a little effort to introduce people to the future, they will become fast friends with it. They *will not* want to go back to the past. In fact, teachers told us that there is a growing gap between those who have *access* to computers outside of school, and those who do not. In some cases, there is even hostility.

4. *U S WEST "Community Technology Training Academy"*

The next program was to look for ways to put computers at everyone's fingertips, permanently. We announced a "community technology initiative." In this program, we did what adults often do when they need a little computer help, we called on the students.

We asked community organizations to propose ways that inter-generational teams could set up computer-training and computer-usage programs for inner-city neighborhoods and entire rural communities.

We offered equipment for local computer networks, Internet connections, training for the trainers and a $15,000 start-up grant. We received excellent applications.

Last winter, we hosted three one-week sessions in the U S WEST Technology Training Academy, in Denver, for 69 teams. The cost was about $2.1 million. Our enthusiastic participants are back in their communities, now, sharing what they learned with some remarkable early results.

Most participants have already set up computer labs for community use and have already trained hundreds of people in their community. Many have waiting lists for this training. Some of these centers are in libraries, community centers, housing projects, and in schools that have agreed to stay open after school hours.

Inner-city children are finding that computer skills can put hope in an otherwise-hopeless future. Welfare moms are going "back to school," on-line. Communities that had lost their timber-harvesting and coal-mining jobs are creating information-mining jobs. Senior citizens are exploring new horizons. Small businesses are developing larger markets.

What have we learned through our Tech Academy? While information technology cannot replace basic values, it can be used to help spread those values by:

- helping people help others;
- providing our children with the skills they will need in the "on-line" world of the 21st century;
- enabling everyone to be part of an increasingly global culture; and
- helping our communities deal with unemployment, isolation, gangs, and hopelessness.

5. *WOW by One*

The last initiative involves U S WEST employees. Last year, we asked our employees to join in the effort to reach out to our communities and schools—and they did.

Nearly one thousand U S WEST employees have signed-up as mentors to extend our "WOW" program to hundreds of additional classrooms and communities. We call it "WOW by One"—Widening our World by one person helping. The employees volunteer in classrooms to train students and teachers. We are giving direct grants and equipment to the classes in which they volunteer.

CONCLUSION

The total cost of these programs over five years is $27.3 million. Moreover, we are proud that our projects have served as the "seeds" of further development expanded funding.

We would like to invite each of you to visit one of our projects—in action. These projects will show you how people—with a little help from U S WEST—are connecting thousands of people with the future. Our communities think they are better for it. We have distributed information to you on what we are doing in each of the 14 western states that we serve.

Thank you again for this opportunity to share the commitment that the U S WEST Foundation has made to getting people on-line.

Chairman BLILEY. You're certainly welcome.

Now, we will hear from Ms. Marilyn Reznick, Vice President, Education Programs, AT&T Foundation.

STATEMENT OF MARILYN REZNICK

Ms. REZNICK. Thank you, Congressman Goodling, Congressman Bliley, and distinguished members of the panel. I thank you for the opportunity to be here representing AT&T this morning.

My name is Marilyn Reznick, and I'm Vice President of the Education Program at the AT&T Foundation.

AT&T has long been a champion of the power of effective education. Our legacy began more than a century ago with the founder of our company. Alexander Graham Bell was one of the first to advocate for the education of the deaf, and he backed that with both his personal and financial commitment, laying the groundwork for the philanthropic culture that exists in AT&T today.

Since 1984, AT&T has invested more than $575 million in cash and in-kind support for education. We support education for both economic and philanthropic reasons. The economic health of this Nation depends on the workforce that's growing up in schools today. AT&T wants to make sure that these students have the talented teachers and resources they need to succeed in life.

Though AT&T Education Programs support life-long learning, I'm going to focus primarily on our investment in K-12 education initiatives here today.

The AT&T Learning Network, created in 1995, represents the company's single largest education initiative to date. This is a 5-year, $150 million program to help families, schools, and communities learn how to use these new technologies to improve teaching and learning. The corporate commitment includes AT&T technologies and resources from our business, which is valued at $100 million, and AT&T Foundation grants of $50 million over the next 5 years.

Our first priority in designing the AT&T Learning Network was to help provide access to these new technologies. We focused initially on providing links to the Internet and getting teachers and students online. Hundreds of AT&T people also helped by organizing "Net Days" to wire schools for Internet access.

AT&T also realizes, however, that wires alone are not enough. Net Days are just the first step. It's the next days that matter—when teachers and students being to try to learn how to use these new technologies. That's why our AT&T Learning Network provides online resources to help educators plan for and use technology in the classroom. There's a teacher tutorial on how to learn to use the Internet, tours of Web sites, mentoring by teachers, not us, but other teachers on how to use technology in the classroom, and links and pointers to valuable educational resources. These resources are free, and they're available online at our Web site.

We're also concerned about the preparation of future teachers and so we provide grants to institutions of higher education. We know that well-trained teachers are critical to the success of our students.

We also support technology in higher education, to facilitate online learning, such as our support to the Western Governor's University, which is a growing virtual university that will enable students anywhere to complete online course work, even their college degree.

We encourage the use of technology to build learning communities, and we're making a special effort to reach those communities who do not have access to technology. We were one of the first companies to join a national effort to introduce technology in 15 empowerment zones. And in California, we're working with the Los Angeles County Office of Education to establish 25 community-based technology learning centers so students and teachers, parents, grandparents, small business owners, entrepreneurs can learn to use technology right in their own neighborhoods.

We're also making steps to take sure that the learning communities are a safe place for our young children. AT&T Wireless Services has launched a safe schools program to provide digital wireless phones and AT&T wireless service to 1,000 schools all across the country. This $1 million initiative is an effort to increase the safety of students, whether in classrooms, on playgrounds, or any other school setting.

We're also concerned about the safety of children online. AT&T WorldNet Service is now offering a free kids browser to its customers so that parents and care givers can protect the experience of their children online. And at the national level, AT&T is a major sponsor of America Links Up, an awareness and educational outreach program to give families the information and tools they need to keep their kids safe.

In an effort to expand our efforts to bring technology into the classroom, we've given our customers an opportunity to play a role.

Through the AT&T Learning Points Program, customers can earn five points for every dollar they spend with us, then donate those points to a school of their choice. The school can then redeem those points for computer hardware, software, and other instructional materials.

And finally, our employees are the heart and soul of our education efforts. As the Newark Star Ledger recently pointed out, AT&T's philanthropy isn't just about writing checks. We roll up our sleeves and go out to meet those in need.

AT&T is proud of our long history of support for education, from the early days of supporting education for the deaf to our significant efforts to increase the number of women and minorities in the fields of science and engineering. Today, we want to make sure that children have access to the technology they need to effectively meet the challenges of the next century.

Education is the most important investment we can make. It's an investment in our future.

Thank you.

[The prepared statement of Marilyn Reznick follows:]

PREPARED STATEMENT OF MARILYN REZNICK, VICE PRESIDENT OF EDUCATION PROGRAMS, AT&T FOUNDATION

Thank you for the opportunity to testify on behalf of AT&T about our education and technology initiatives. My name is Marilyn Reznick, and I am the vice president of education programs with the AT&T Foundation.

AT&T has long been a champion of the power of effective education. Our legacy began more than a century ago with Alexander Graham Bell. Bell was one of the first to advocate education of the deaf, laying the groundwork for the philanthropic culture that exists in AT&T today. Over the last 14 years alone, AT&T has spent more than $575 million in cash and in-kind support for education. We know this is money and time well spent: by investing in education, AT&T is investing in the future of our own company and the future or our country. The economic health of this nation relies on the talented workforce growing up today in schools across America. AT&T wants to make sure that America's children have the teachers and resources they need to succeed in life.

Though AT&T's programs support lifelong learning, I will focus today primarily on AT&T's leadership and investment in K-12 education initiatives. The AT&T Learning Network, created in 1995, represents the company's largest single education initiative to date. This is a five-year, $150 million program to help families, schools and communities use technology to improve teaching and learning. This corporate commitment includes AT&T technologies and resources valued at $100 million and AT&T Foundation grants of $50 million over five years.

Our first priority in designing the AT&T Learning Network was to help provide access to technology. The AT&T Learning Network focused initially on providing links to the Internet, getting teachers and students online and networking. Hundreds of AT&T people throughout the country helped by organizing community "net days" to wire schools and bring the benefits of the Internet to education. The results were tremendous. In Atlanta, for example, 290 employees pulled wires to give 305 classrooms in 38 schools connectivity to cyberspace.

AT&T realizes, however, that wires alone are not enough. "Net days" are just the first step: it's the "next days" that matter, when teachers and students begin to use their new technology. That's why the AT&T Learning Network provides online resources to help educators plan for and use technology in the classroom. These resources include:

- A teacher tutorial on how to use the Internet;
- A tour of education-related uses of the World Wide Web;
- Mentoring to help teachers use technology in the classroom;
- Links and pointers to navigate through educational Web resources including lesson plans, online projects and other teaching aids.

All of these resources are free and available at AT&T's web site: [http://www.att.com/learningnetwork].

We also support the preparation of future teachers through grants to institutions of higher education across the country. AT&T understands that well-trained teachers are critical to the success of our students. After all, technology is only valuable if our educators know how to use it effectively. Other AT&T higher education grants support the use of technology to facilitate online learning. For example, AT&T is a major supporter of the Western Governors' University, a growing virtual university that will enable students anywhere to complete coursework and earn college degrees with the help of technology.

AT&T encourages the use of technology to build learning communities, and we're making a special effort to reach geographic communities and communities of people who do not have easy or widespread access to technology. AT&T was one of the first companies to join a national initiative to introduce technology in 15 "Empowerment Zones." In California, AT&T is working closely with the Los Angeles County Office of Education to create 25 community-based technology learning centers where parents and grandparents, teachers and students, small business owners and entrepreneurs can learn to use technology, right in their own neighborhoods. We want to make sure that people in these communities are not left behind in the technology revolution.

We recognize it takes significant resources to ensure there is not a digital gap and no student is left behind. We also recognize no one entity—private, public or non-profit—can do it alone. That's why AT&T supports a broad range of programs, including universal service and the education rate goal of providing affordable connections to advanced telecommunications services for schools, libraries and rural non-profit health care centers.

AT&T is also taking steps to make sure that learning communities are safe places, especially for young children. AT&T Wireless Services launched a new Safe Schools program last fall to provide digital wireless phones and AT&T Wireless Service to 1,000 schools across the U.S. This $1 million initiative is an effort to increase the safety of students in classrooms, on playgrounds and in other school settings. We are also concerned about the safety of America's children as they venture onto the Internet. AT&T is addressing this in a number of ways. AT&T WorldNet Services distributes a free "kids' browser" to its customers so that parents and caregivers can protect the experience their children have on the Internet.

On a national level, AT&T is a major sponsor of America Links Up, an awareness and educational outreach program designed to provide families with information, tools and resources to support the safety of children online. The year-long effort started yesterday as National "Kids Online Week" got underway. AT&T joined five other online industry companies at the national kickoff ceremony. As the program continues throughout the school year, AT&T will participate in "teach-ins" to provide families with the opportunity to learn about Internet basics; tools that promote safe, rewarding online experiences; and information about finding quality web sites for kids. Already in Boston and Washington, D.C., AT&T volunteers have led Internet "teach-ins" for local students and their families.

To expand our efforts to bring technology into classrooms, the AT&T Learning Network created the AT&T Learning Points program to give our customers a direct role in helping schools. AT&T customers can earn five Learning Points for every dollar they spend on qualifying AT&T Residential Long Distance phone calls. Customers can then donate their Learning Points to any school of their choice; the schools can then redeem the Learning Points for a wide selection of computer hardware, educational software and other instruction materials. Through the Learning Points Program, AT&T has helped more than 40,000 schools receive over $1 million worth of technology-related resources.

Finally, our employees are the heart and soul of our education efforts. As the Newark, New Jersey *Star-Ledger* recently observed, AT&T's philanthropy isn't just about writing checks—we roll up our sleeves and meet those who need help, face to face. Our volunteer program, AT&T CARES, encourages employees to devote one paid workday per year to community service and nearly half this time is spent in support of education projects. AT&T CARES also rewards employee volunteers by matching their time with cash grants to the organizations they support. Since 1997, AT&T employees and retirees have spent more than 250,000 volunteer hours contributing to education initiatives in their home communities.

In recognition of the AT&T Learning Network's impact on education through technology, a panel of national experts awarded AT&T the 1997 EdNET HERO Award, recognizing private industry's support of education.

AT&T is proud of our long history of supporting education: from our early days of providing education to the deaf, to our ongoing efforts to significantly increase the number of women and minorities in the fields of science and engineering. Today, AT&T wants to make sure that children across America can use technology effec-

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tively to meet the challenges of the twenty-first century. Education is one of the most important investments we can make, an investment in our future.

That concludes my prepared statement. I would be happy to answer any questions you might have.

Chairman BLILEY. Thank you.

And now we will hear from Mr. Joe Waz, Vice President, External Affairs, Comcast Corporation.

Mr. Waz.

STATEMENT OF JOSEPH W. WAZ, JR.

Mr. WAZ. Thank you. Mr. Chairman, Chairman Bliley, Chairman Goodling, all the members of the committee, thank you very much for inviting Comcast Corporation to address you this morning about our initiatives in education and technology.

Comcast is the fourth largest cable company in the United States, headquartered in Philadelphia. We're privileged to serve over four and one-half million customers in 21 States from coast to coast.

We also provided wired and wireless telecommunications services as well as content for cable and other media.

Comcast strongly supported congressional efforts to adopt a pro-competitive deregulatory national telecommunications policy through the adoption of the 1996 Telecommunications Act. Now, we're working to fulfill the promise of that Act. We've invested nearly $1.5 billion since 1996 to build state-of-the-art, hybrid fiber optic coaxial cable systems in our communities. This investment makes possible an entire new generation of advanced competitive digital broadband services, including high speed cable modem service.

As part of our commitment to the local communities we serve, we are putting this great technology to work to enhance education and literacy. My prepared statement provides more details.

Let me, if I may, highlight a couple of our programs.

During his term as chairman of the National Cable Television Association in 1996, Comcast president, Brian Roberts, led the industry pledge to provide free cable modem service to America's primary and secondary schools, a program known as Cable's High Speed Education Initiative. Through this program, Comcast makes available a free high speed cable modem and limited Internet access via that modem to every K through 12 school, both public and private in those areas where we commercially deploy cable modem technology.

For those of you who may have used the Internet, but may not have seen a cable modem service such as Comcast at home in action, let me give you a sense of why this is so special.

Cable modems transmit data fast—50 to 100 times faster than competing telephone technologies. This means virtually instantaneous access to standard text and pictures, and it makes full motion video and audio a real part of the Internet experience. High speed is extremely important in this area because for the Internet to be a valuable part of the classroom, we need to avoid down time, the slow download times of standard modems, so we can keep students' attention.

At last count, over 400 schools in Comcast areas already benefit from this private sector initiative. And, Chairman Bliley, as you know, this program will soon be available in Chesterfield, Virginia. This is a pro bono service. It's not underwritten in any way through government Universal Service funds. And nationwide, cable's high speed education initiative, as illustrated on the chart to your right, has connected over 2,000 schools already, all voluntarily.

Building on our success in the schools, Comcast recently expanded its program to include public libraries. We've already connected 30. Our commitment doesn't stop with free cable modem service—the importance of training has been mentioned several times this morning. We have developed and distributed teacher training materials. We support the Web teacher program with NCTA and TechCorps, and we've also created the award-winning Comcast Online School Yard Web site that catalogues and connects to the best of the Web for K through 12 teachers and students.

We're also pursuing public-private partnerships. One I'd like to mention is MercerNet in New Jersey. We've partnered with 12 school districts, a community college, and a science center in Mercer County. We created an interactive wide area fiber optic network, using cable plant. And our school partners received a $700,000 grant from NTIA, the TIIAP program in recognition of this innovative technology. In fact, this was the first cable technology program to receive a TIIAP grant.

MercerNet offers interactive full motion video and audio for distance learning, and what it makes possible in Mercer County, which ranges from very urban to very rural, from wealthy districts like Princeton and Lawrence County, to inner-city districts, like Trenton, it permits the best and the brightest teachers and their resources to be brought into classrooms throughout the county, face to face with students. So it's a terrific pilot program.

These projects show how one company is bringing advanced education technology to America's students, and it's a start. But even our best voluntary efforts and those of the other companies who were here this morning and others in the industry can't fulfill the immense need our schools face as we enter the 21st century. That's why Comcast has consistently supported a Federal program to provide access for these institutions. My prepared statement does provide four principles that I think will be an important part of any Universal Service program going forward. But I would say that we do very much hope that the existing program can continue without delay, even as efforts are made to improve it so that the schools and libraries that do want to use this technology are able to receive Federal support.

In closing, Comcast has invested in many ways to build strong communities and to provide advanced services that will enhance education. The Federal commitment to Universal Service for schools and libraries will help give all of America's children a chance—a fair chance to enjoy the benefits of these technologies. And we look forward to working with you and with the Federal agencies to ensure these programs can do so.

Thank you, Mr. Chairman.

[The prepared statement of Joseph W. Waz, Jr. follows:]

Prepared Statement of Joseph W. Waz, Jr., Vice President, External Affairs and Public Policy Counsel, Comcast Corporation

Chairman Bliley and Chairman Goodling, thank you for inviting Comcast Corporation to address your committees on our initiatives in education and technology.

My name is Joe Waz. I am Vice President for External Affairs and Public Policy Counsel for Comcast Corporation. I also chair Comcast's Corporate Contributions Committee.

Comcast Corporation is the fourth largest domestic cable company, serving over 4.3 million customers in 21 states. We also provide wired and wireless telecommunications services, as well as content for cable and other media.

Comcast strongly supported Congressional efforts to adopt a pro-competitive, deregulatory national telecommunications policy through passage of the 1996 Telecommunications Act. We are doing our part to fulfill the purposes of that Act. We have invested nearly $1.5 billion since 1996 to upgrade our local cable systems to hybrid fiber optic/coaxial architecture. This investment makes possible an entire new generation of advanced, digital broadband services, including high-speed cable modem service, which we have begun to deliver.

COMCAST INITIATIVES IN EDUCATION AND TECHNOLOGY

As part of our commitment to the local communities we serve, we are putting our technology to work to enhance education and literacy. Let me explain how.

During his term as chairman of the National Cable Television Association in 1996, Comcast President Brian L. Roberts led the industry pledge to provide free cable modem service to America's primary and secondary schools—a program known as Cable's High-Speed Education Initiative. At the time of the industry pledge, *The New York Times* editorialized: "[Cable's] offer will bring fabulous educational resources to schools too poor to provide an advanced Internet hookup on their own." The *Times* commended cable's voluntary efforts to advance the federal goal to connect schools to the Internet, noting that government could not do the job by itself.

Since late 1996, Comcast has made available a free high-speed cable modem, and unlimited Internet access via that modem, to every K-12 school, both public and private, in those cable service areas where we are commercially deploying this extraordinary technology.

For those of you who may have used the Internet but may not have seen a cable modem service—such as Comcast@Home or Road Runner—in action, let me give you a sense of why this is so special.

Cable modems transmit data fast—more than 50 times faster than the most advanced telephone ISDN technology, and over 100 times faster than standard telephone modems. While standard modems turn "the World Wide Web" into "the World Wide Wait," cable modems turn it into "the World Wide Wow" for youngsters. Cable modems service gives virtually instantaneous access to standard text and pictures, and also makes full motion video and audio a real part of the Internet experience. These high-speed features are especially useful in classroom situations because they help minimize "down time" during lessons and school projects, and therefore students' interest remains focused.

Over 310 schools in Comcast areas already benefit from our private initiative to provide free, high-speed cable modems. This is a pro bono service, and is not underwritten in any way through government universal service funds. And nationwide, Cable's High-Speed Education Initiative has connected over two thousand schools, all voluntarily.

Let me give you a sense of how the power of cable modem services can propel learning. We undertook a pilot project at Brentwood Elementary in Sarasota, Florida, in partnership with the Computer Curriculum Corporation and the Florida Department of Education. We placed cable modem service in the classroom, and also in the homes of 29 students, to focus on improving math achievement. The study showed that those students who had access to cable modem services at home and at school made as much as a one-year gain in academic achievement within a three-month period. It also showed that more than 50 percent of the control group, who had access to cable modem service just in the classroom, also improved their math problem-solving scores. A summary of this project appears in the October 1998 issue of Cable in the Classroom Magazine.

Building on our success in the schools, Comcast last year expanded its free cable modem service program to include public libraries. We also pledged to help raise funds to purchase computers for institutions that need them. We have already connected over 30 libraries with modems, and we have raised more than $55,000 through cause-marketing help purchase needed equipment.

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Our commitment does not stop with free cable modem service. Comcast has also developed a teacher training video and manual to help teachers make the most of cable modem service, giving them the tools and training they need to integrate the Internet into the everyday classroom. The "Internet Basics" training manual includes the history of the Internet, instruction on conducting Internet searches, and curriculum integration ideas.

Comcast also supports the National Cable Television Association's program webTeacher, in cooperation with Tech Corps. WebTeacher is a comprehensive, 80-hour Internet training tool that can be used as either a guide for a structured teacher training series or as a self-paced workbook for an individual teacher.

In 1997, Comcast developed and launched the Comcast OnlineSchoolyard (www.onlineschoolyard.com), an award winning K-12 Web site featuring the links to over 500 of the best education sites on the Internet for students and educators. The site, complete with graphics, animation, video and audio, is designed to take full advantage of the high-speed cable modem environment, although it is available to all users of the Internet.

OnlineSchoolyard has been widely hailed. It was named a Web Winner by the Philadelphia Inquirer, a USA Today Hot Site of the Day, and a Link of the Day by CNN Headline News, among others. But even more important, educators, students, and parents recognize Online Schoolyard as a terrific educational resource because it gives teachers and students quick and easy access to top-quality information and enables teachers to tailor lessons for their needs.

I would also like to highlight an example of an innovative public-private partnership of which we are particularly proud. MercerNet, an interactive wide-area fiber optic network developed by Comcast and a 14-member educational consortium in Mercer County, NJ, links Mercer County's public school districts, the county's community college, and the local science center with one another as well as with the county's public libraries and its special services center. Comcast built the network at a cost of $1.73 million. MercerNet received a TIIAP grant from NTIA (Dept. of Commerce) totaling $700,000 in recognition of its innovative application of technology. (In fact, MercerNet was the first project using cable technology to receive a TIIAP grant.) Ongoing costs are supported by the schools.

MercerNet provides interactive frill motion video and audio for distance learning, high-speed cable modem access, and high-speed data connectivity. Mercer County ranges from wealthy neighborhoods in Princeton and Lawrence Township to inner-city neighborhoods in Trenton...and from very urban to very rural. MercerNet makes it possible for every school district in the county to benefit from the best and brightest teaching specialists through full two-way video and voice interactive communication. We had the distinct pleasure of demonstrating the MercerNet system at an education technology expo sponsored by the National Coalition on Technology in Education and Training, held last week in the Dirksen Building.

We have submitted additional information on Comcast's cable modem service pledge, Comcast OnlineSchoolyard, the Sarasota pilot project, and MercerNet as attachments to my prepared statement.

Our wireless division also participates in bringing technology to classrooms. Comcast Cellular Communications takes part in the "Class Link" initiative under the auspices of the Cellular Telecommunications Industry Association Foundation. In April 1997, Comcast Cellular deployed the ClassLink service on the Lumberton campus of the Burlington County (NJ) Special Services School District. This service allows about 30 teachers and staff members to use cellular phones to contact one another, and to call parents and others concerned with the educational progress of students, as well as to summon medical assistance or other emergency services, from anywhere on the large campus. Comcast Cellular has also installed the ClassLink service at Highlands Elementary School in Wilmington, Delaware, with an emphasis on parent/teacher communications. Since 1995, more than 100 schools nationwide have had ClassLink systems installed under CTIA's program.

FEDERAL PROGRAMS TO PROMOTE SCHOOL AND LIBRARY ACCESS TO ADVANCED INFORMATION AND COMMUNICATIONS TECHNOLOGY

Comcast believes these projects show how the communications industry, through a combination of community service activities and public-private partnerships, can bring advanced educational technology to America's students. Government cannot, and should not, do the job alone. But at the same time, private entities cannot fulfill by themselves the immense needs America's schools face as we enter the twenty-first century.

That's why Comcast has consistently supported the public policy goal of promoting universal service, particularly access by schools and libraries to advanced telecommunications and information services.

We believe that Congress and the FCC have taken important steps toward establishing a new universal service program. Federal support will be vital to ensure that the connectivity goals of the 1996 Telecommunications Act are achieved. It is essential that the federal program be implemented in a manner consistent with the overarching goal of the 1996 Act: to promote a pro-competitive, de-regulatory communications marketplace.

As a provider of both wireless and wireline telecommunications services, Comcast is a financial contributor to the universal service program; we may also receive funds from the program as we compete for and win contracts to provide expanded services to schools and libraries. While our gift of free cable modem service to schools and libraries is a good start, and while other industry participants also have their own programs, these efforts alone will simply not be enough to get America's children connected to the 21st century. The federal program is important.

As that program evolves, we believe certain principles are critical to its success.

First, the program must be carefully targeted to provide help to institutions that are most in need. It is important that all of America's children benefit in some fashion from the program, but the program must be tailored to focus on the most necessary recipients. If the program grows too large, that would jeopardize industry support and consumer support.

Second, the program must promote competition so that schools and libraries can obtain the best services at the best prices. We commend the FCC for ensuring that competitive bidding is a sine qua non of the program, and we are already competing in local communities to provide expanded services to schools and libraries. Competitive bidding also helps to reduce the need for federal subsidies.

Third, the funding requirement from telecommunications carriers must be fair and equitable. As a cellular telephone provider, Comcast is deeply concerned about the detrimental, anti-competitive effects in wireless markets that are resulting from the current administration of the program. We have asked the FCC to ensure that the assessments on wireless carriers are based on accurate and consistent revenue estimates to avoid causing inequities among direct competitors. The wireless market has become highly competitive—in greater Philadelphia alone, we compete with five other major carriers. Unfortunately, under the existing universal service rules, each company is currently assessed a different universal service contribution based on inconsistent assumptions and calculation methods that are allowed to differ from company to company.

For the past year, Comcast has contended that the current rules are yielding contribution obligations that vary widely among competitors in the same geographic market-creating disparities that total millions of dollars. This cannot be permitted to continue. We have asked the Commission to simply do what makes sense—adopt consistent assumptions for similarly situated competitors that will yield more consistent charges for wireless customers. We ask for this committee's help in getting a resolution to this problem that is long overdue.

Finally, the federal universal service program, and any coexisting state programs, must be both predictable and carefully coordinated. These programs must be minimally disruptive of established business practices and must permit carriers to forecast their obligations through their fiscal year. Because of the interstate nature of wireless service, we believe that the federal universal service mechanism should be the primary means of assessing wireless carriers for universal service, with clear limitations on state universal service assessments for wireless carriers.

CONCLUSION

Comcast has invested in many ways to build stronger communities and to provide the advanced services that will enhance the educational experience for teachers, students, and families. Comcast has consistently supported the concept of a universal service program to help provide advanced technology to schools and libraries. We believe a program that meets the criteria I have outlined today is the best way to promote connectivity and give all of our children a fair chance to enjoy the benefits of advanced communications and information services. We will work with you and other federal agencies to make the federal program the best it can be.

I look forward to your thoughts and questions to discuss how we can achieve this important national goal.

Chairman BLILEY. Thank you.

Now, we will hear from Mr. Brent Frey, Supervisor of Computer Services, West Shore School District, New Cumberland, Pennsylvania.

Mr. Frey.

STATEMENT OF BRENT D. FREY

Mr. FREY. Thank you Mr. Bliley and Mr. Goodling. Thank you for inviting me here today.

For nearly 2 years, school districts across the country have waited for the E-rate program to move forward. And during that period of time, several districts have been forced to advance their plans without the Federal funding available, while others have just waited because they have really no other choice than to wait for the governmental funds to support their rural or urban school districts. From the perspective of a district that has had the opportunity to move forward, spending approximately $15 million in the last 4 years alone, I can tell you that the advancement of technology in our school district has absolutely enhanced our educational system and the achievement of students. And that's really what I think we need to assess, and we need to do with technology in schools. We need to look at assessments and whether or not we're doing the right thing with kids.

Few argue the power of technology in our schools. Technology is a tool that has the ability to improve and better facilitate the learning process. It allows students to take a more active role in their learning by allowing for multiple learning strategies. Technology connects our students with a world of increasing academic knowledge and exploding amounts of information. But the costs of technology and its infrastructure are a strain on any school district budget. The technology gap between schools and the rest of the world is significant, the private world I would mean by that, is immense. We must work to base our model of education on one that is in line with an information rich society. School districts alone cannot make these changes. And I'm very pleased to hear from the corporate individuals that are here today that they've made major strides to help school districts move forward.

As you've witnessed the intense need for information technology workers in the private sector, there also exists the need for highly skilled, qualified technology worker in the education workplace. Because funding is a constant issue for educational institutions, the ability for a school district to secure and keep qualified and capable technology workers is very difficult. In fact, many that come into education have opportunities outside of education very quickly and move into the private sector because of the variance in the amount of money that they will make there. Additionally, colleges and universities are only beginning to offer programs for individuals that want to be technology leaders in schools. In the State of Pennsylvania, there are 501 school districts, and there are 38 certified instructional technology specialists serving in only approximately 25 school districts across the State. Most of the technology workers in our schools have come from industry. They're not educators. They know how to make technology work. They know how to implement it. But they know nothing about implementing it and helping teachers to implement technology for improving student achievement. So we have a great gap between what we're able to do with hardware and the funding for hardware and implementing that, and being able to take that hardware and actually use it to the benefit of students. That's a major concern of mine. It has been for some time. And I think we need to look at that very closely before we move forward with expanding funding for technology. The "gee wiz" factor of technology that we all have, in other words being able to put a computer in a classroom alone is not going to solve the problems that we encounter, which is to improve our information technology workforce, to improve our society, hopefully, and to improve and reform our education system.

While funding technology in school districts is difficult, technology coordinators have a very difficult time dealing with the funding issues, in other words filling out grants and forms and especially the E-rate. I brought the notebook with me today on all of the changes that occurred on the E-rate in the first 75 days. There were 83 changes to the E-rate in 75 days. And this notebook represents one—each sheet is an e-mail message that told me what I needed to change in my application process. In speaking with our State E-rate specialist yesterday, I found that nearly 70 percent of the school districts that applied for E-rate this year currently are not thinking of applying next year because of the amount of paperwork that they are forced to do. Whether that number was surveyed or not, I'm not sure. But that's a significant amount of the school districts that applied in year one.

So, to conclude, I've offered in my testimony several other items that I think are important on this issue. But please realize that we need to consolidate Federal funding. We need to make it easier for technology coordinators. There aren't many of us out there. And in most of the poor and rural school districts, it's either the superintendent or the business manager who is setting up the computer in the classroom. And without training and assistance to teachers, technology alone is not going to make a difference in our schools.

So I thank you for the opportunity, and I'll pass it on to my next person here.

[The prepared statement of Brent D. Frey follows:]

PREPARED STATEMENT OF BRENT D. FREY, SUPERVISOR OF EDUCATIONAL TECHNOLOGY, WEST SHORE SCHOOL DISTRICT

Thank you for the opportunity to testify before this committee on Funding for Educational Technology.

For nearly two years, school districts across this country have watched and waited as the E-Rate program has been tossed in and out of committees concerned primarily with whether it is a tax and is constitutional. During that time, some districts have advanced their plans for implementing technology using local funds, while others could not help but wait for funding from the government due to their inability to raise money locally to implement technology. The gap between those school districts that have technology and those who do not have technology has dramatically increased in those two years. From the perspective of a district who has had the opportunity to have technology, I must tell you that providing students access to technology is absolutely essential to the advancement of our system of education.

Few argue the power technology can have in our schools. Technology is a tool that has the ability to improve and better facilitate the learning process. It allows students to take a more active role in their learning by allowing for multiple learning strategies. Technology connects our students with a world of increasing academic knowledge and exploding amounts of information. But the costs of technology and its infrastructure are a strain on any school district budget. The technology gap between schools and the rest of the world is significant. We must work to base our model of education on one that is in line with an information rich society. School districts alone cannot make these changes.

As you have witnessed the intense need for information technology workers in the private sector, there also exists the need for highly skilled and qualified technology workers in our education system. Because funding is a constant issue for educational institutions, the ability for a school district to secure and keep qualified and capable technology workers is very difficult. Additionally, colleges and universities are only now beginning to offer programs for individuals who want to support the technology needs of education. Funding to promote the field of educational technology is needed desperately to allow us to realize the technology infrastructure that all school districts and our government want to build. Technology without the proper support will go nowhere in our schools.

While finding technology coordinators for school districts is difficult, the job they enter will present more challenges than you may imagine. While attempting to purchase, implement, train, repair, and support the hardware alone, these individuals are asked to develop computer network infrastructure and find the funds to make their programs work. The funding area can become one of the technology coordinators' greatest challenges. With the current E-Rate program, schools received the forms required to complete their telecommunications projects, but were faced with eighty three (83) changes to those forms in a seventy five (75) day period. These continual changes forced many of our states to hire E-Rate specialists and pushed school districts to hire consultants to fill out the paperwork. In the end, the FCC cut the fund and no monies have been sent to schools to date.

From the beginning, I was skeptical of the E-Rate and its promise to provide services to all school districts in the country. Creating the Schools and Libraries Corporation to manage the fund seemed to mandate the need for paperwork and accountability. The application process created by the SLC expanded work for technology coordinators when electronic mail and junk mail started arriving from virtually every technology company in the country trying to sell a product with the E-Rate stamp of approval. On average, I receive at least twenty (20) electronic mail messages every week related to E-Rate from vendors. This virtual mailing list was created when the requirement for placing applications on the Internet was made by the School and Libraries Corporation (SLC). I am extremely disappointed that the process promoted this frenzy for vendors.

The federal government would advance technology in our schools much more effectively if there were efforts to consolidate Goals 2000, Technology Literacy Challenge Grants, E-Rate, and other federal dollars into a streamlined process that maintains accountability while cutting down on the days of paperwork each fund or grant requires. While this appears to be a simplistic view, there are few districts that have the resources to maintain and file the necessary paperwork for obtaining grants or discounts. While the goal of these grants or discounts are often to fund urban and rural school districts, much of the money still flows to more wealthy ones. This creates a further dichotomy between the haves and have nots. Poor school districts simply do not have the resources to hire E-Rate consultants or Goals 2000 grant writers. So does the money really land where it's intended?

It seems to me that our government should endeavor to construct a process that doesn't require a new corporation to oversee its management, but seeks to cut down on bureaucratic overhead. The concept of the SLC paying on invoices to vendors has not been met with open arms by vendors we have worked with. When initially looking at E-Rate possibilities as we developed computer network specifications for our two high schools, we encountered an interesting question from a vendor. When will I be paid by the SLC? Upon calling the technical support hotline at the SLC we found they did not have an answer. Additionally, it was found that for those vendors working on a project phased in over time that payment could not come until the end of the project. In school construction, vendors typically are paid in intervals as they complete components of the project. In our case, we could not fit our projects into the E-Rate formula because the vendors awarded the bid wanted paid in intervals. As a result, our school district is cabling four schools now and twelve more in the coming year with plans to pay for the projects using local funds.

Strong leadership for educational technology is needed in Washington. While the E-Rate program has its problems, please realize that all schools in our country need to provide their students with access to technology if we are to remain a progressive nation. Without federal dollars for technology along with support of programs that promote research in educational technology, the dream of a better educational system may not be realized.

The rapid changes we are experiencing in our economy are due, in part to technology and may only be a hint of the revolution that is before us. America must prepare its youth to be flexible and deal with a workplace that will be everchanging. We know that in excess of sixty percent (60%) of the jobs in the year 2000 will require computer skills. By offering advanced telecommunications in all schools, students will be offered greater educational opportunities and our system of education may draw toward a better sense of equity. While there is no boiler plate design for technology in our schools, we need to enhance leadership in the field of educational technology, and only through cooperative efforts among school districts, states, and our federal government can this take place.

Thank you.

Chairman BLILEY. Thank you very much, Mr. Frey. And now, we will hear from Mr. Forrest Fisher, Director, Education Technology Support, Education Service District 105, Yakima, Washington.

Mr. Fisher.

STATEMENT OF FORREST J. FISHER

Mr. FISHER. Good morning. It's a privilege to be here, and I thank you for this opportunity.

While I hardly echo the comments of Dr. Roberts and Mr. Frey, I can clearly say that they echo exactly the things that are going on in our region. I would also like to share some experiences from the front lines as to how educational technology is being used in classrooms in central Washington.

One of the most impressive projects that is occurring right now is partially funded through the Technology Literacy Challenge Fund and grant funds directly from the State of Washington. It's called the Student Hub Academic Resource Exchange at ESD 105, or SHARE 105. Now entering its third year, SHARE 105 will have provided over 900 central Washington teachers with the equipment, software, and training to effectively lead students to the research and publication on the World Wide Web over 1,200 multimedia-based student research academic projects. Each teacher received 5 days of training in the areas of Internet Project-based Learning, a multimedia authoring tool called HyperStudio and 2 days in the World Wide Web publishing. Teachers are paired with a mentor teacher who's previously completed the program. They also receive three computers, Internet access, and the related equipment and software to effectively create academic projects in multimedia form. Additionally, teachers also publish their project-based lesson designs on the Internet, and make those resources available to educators from around the world.

Student learning and achievement in SHARE 105 is not limited just to skill development, research, presentation design and World Wide Web publishing. Students also develop analytical skills as they provide directed, online feedback on projects by students of similar grade levels in other participating districts. It's kind of like the concept of passing the paper across the aisle and getting some feedback. Only in this case, it's being done electronically across great distance. Students analyze and use the feedback they receive from others in the development of future projects and enhance their learning. This has been the most powerful project involving educational technology that has occurred in our region, and we receive feedback consistently from the 22 school districts that are involved in it that it is the most powerful program they've been involved with at all.

We accomplish this project with basically a staff of two—myself and my secretary—and the cooperation of the technology coordinators in each of the districts. I would echo Mr. Frey's comment that technology coordinators, besides sometimes being the superintendent or fiscal officer, are often a full-time teacher who attempts to support technology in their "spare" time.

We have also been involved in the implementation of the E-rate in our region. We had extremely high participation in the E-rate activities. We had an attendance of 100 percent of our school districts at our initial meetings and in the implementation of the program and submission of 470 forms and 471 forms. As been stated previously, the school districts and the educational community is highly supportive of the E-rate concept and program as intended. But its implementation has been the problem. The paperwork is overwhelming. The—and, of course, the most pressing need is that the funding has yet to be released. We have literally have millions of dollars of projects sitting there on hold and actually going out of date, waiting for this funding to arrive. A typical school district has spent more than 120 hours simply completing the paperwork to date, and there's still more paperwork and more process to come.

Another challenge for our school districts is that the funding that was intended to provide the required infrastructure—that is the wiring and hubs and so forth in a school building—apparently is going to be reduced in favor of directly provided telecommunications services. This puts schools in an awkward position, where they really—their most pressing need right now is that infrastructure in their school. There's also a concern in the delay between the date of application and the actual receipt of funding. And this delay is too long to be efficient, given the changes in technology and the fluctuating costs of technology goods and services.

One of the other challenges that school districts have had with the SLC so far is that when there has been a problem with their forms, their informed through a fax message, which does not tell them what the problem is or which form is the problem. And they are forced to call back and wait on the telephone for typically 2 hours and then finally get to someone and resolve what is typically a small, minor issue.

So, to conclude, I would encourage that the E-rate funding for fiscal year 1998-1999 be authorized as soon as possible. I would also encourage your full support of the Technology Literacy Challenge Fund and Technology Challenge Grant programs because those programs have had tremendous impact upon our region. I would also ask that while the funding is being distributed at this time, that we look to adjust the process so that it can be more effective and reduce the amount of workload and paperwork upon the personnel in school districts.

Thank you.

[The prepared statement of Forrest J. Fisher follows:]

Prepared Statement of Forrest Fisher, Director, Educational Technology Support Center, Educational Service District 105

Background

We are currently involved in the Technology Literacy Challenge Fund grant program with our most significant and successful Educational Technology project: the Student Hub/Academic Resource Exchange at ESD 105 (SHARE105).

Now entering it's third year, SHARE 105 will have provided over 900 Central Washington teachers with the equipment, software and training to effectively lead students through the research and publication on the World Wide Web of over 1200 multimedia-based, student research projects. Each teacher receives five days of training in the areas of Internet Usage and Research, Project-Based Learning, HyperStudio or PowerPoint and two days in WWW Publishing. Teachers are paired with a mentor teacher who successfully completed the program previously for support and the continued learning of the mentor teacher. Participants also receive three computers, Internet access and the related equipment/software to effectively create academic projects in multimedia form. Additionally, teachers publish the Project-Based Lesson Designs and Assessment Rubrics they have developed.

Student learning and achievement in SHARE 105 is not limited to skill development, research, presentation design and WWW publishing. Students also develop analytical skills as they provide directed, on-line feedback on projects by students of similar grade levels in other participating districts. Students analyze and use the feedback they receive from others in the development of their future projects and to enhance their learning.

We have also been involved in the implementation of the Universal Service Fund (E-Rate) since it's inception. We have provided training sessions, assisted in the development of School District Technology Plans and have attempted to keep our constituents informed of the changes and progress in the E-Rate program's implementation. Eight other Educational Service Districts in Washington have provided similar support to the other 271 School Districts.

We have recently created an on-line World Wide Web page to collect feedback from educators in Washington regarding the implementation of the Universal Service Fund. Educators from other states and vendors have participated as well. To view the current results, access: http://etsc.esd105.wednet.edu/Template/Erate FeedbackOutput.cfm

The Needs

Students that utilize Educational Technology to access and share information electronically acquire advanced skills, have increased motivation in learning and are better prepared to be effective in our future workforce. Teachers that have electronic access to on-line resources are better able to provide for the individual educational needs of each student in our ever diversifying classrooms. Programs like the Technology Literacy Challenge Fund and the Technology Challenge Grants have proven to be effective mechanisms to deliver Educational Technology resources and training to classrooms. The SHARE105 Project and many others in Washington depend upon this funding.

A systemic effort like the Universal Service Fund is necessary to effectively and equitably address the telecommunication needs of private schools and school districts. We need to provide an appropriate and consistent level of electronic educational resources and on-line learning opportunities for students in all of our nation's schools. The goal of all classrooms having access to on-line learning resources is appropriate as society and education moves forward.

Due to the nature of telecommunications, geographic diversity, the funding-level inequalities in our nation's schools and the funding system restraints inherent to public agencies; the Universal Service Fund program is the first and best opportunity for the majority of schools to have affordable access to on-line educational opportunities.

- Educational Technology in classrooms is essential to enable teachers to provide effective instruction in increasingly diverse classrooms and to complete the significant administrative requirements involved in the modern classroom.
- This need for electronically connected Educational Technology in classrooms has been placed upon schools by changes in our society, advances in technology and as an expressed need from businesses, communities and parents.
- School District funding mechanisms were not originally designed to accommodate the resources required to provide Educational Technology in classrooms, to electronically connect those resources and to provide effective training for educators.
- Electronically connecting classrooms to the Internet will significantly increase the effectiveness and learning capabilities of the existing computers

The majority of schools have attempted to provide Educational Technology-based learning opportunities for students, but only a small minority have been able to electronically connect these resources together (through the Internet) to increase their effectiveness and greatly enhance student learning.

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The Beginning

The E-Rate program was initially heralded by the educational community and expectations have always been high. This program addresses the significant, recurring telecommunications costs occurred by school districts and libraries that is not normally funded through grants or other sources. The program appears fair and appropriate, as it draws funding from telecommunications services and returns the majority of funding and even additional funds to the same telecommunications services. It provides funding to most needy and technologically challenged schools. As examples of this interest:

- Attendance at our introductory meetings and training sessions was at the 100% level in our region, similar levels of participation was reported to be common in Washington State and throughout the country.
- All of our districts developed (or adjusted) Technology Plans to meet the E-Rate requirement.
- All of our districts submitted E-Rate applications (Form 470) within the 75-day window and at least one Form 471 to request funding.

E-Rate Implementation

The implementation of the Universal Service Fund program over the past twelve months has been frustrating, confusing and disappointing to schools and school districts. The most immediate concern is that private schools and school districts have yet to receive any actual funding after more than a year of significant effort. There are literally thousands of Internet-based projects, contracts with vendors, etc. currently "on-hold" with little progress being made.

Please note that in many school districts, particularly in the most remote and needy areas, the technology staff consists of a full-time teacher who attempts to implement and support an Educational Technology program in his/her "spare time".

Specific concerns include:

- The funding has yet to be released. There are literally billions of dollars in contracts and programs waiting for authorization.
- The amount of redundant paperwork is excessive. A typical private school/school district has spent more than 120 hours just completing the application and process expectations to date, and there are additional steps and paperwork upcoming.
- The funding to provide the required infrastructure inside school buildings (i.e. network cabling, network hubs, switches, routers and other items) apparently is being reduced in favor of services provided directly by telecommunications companies. However, the required infrastructure is actually the most pressing need that many school districts actually have.
- The delay between the date of application and the receipt of funding is too long to be efficient within the context of the changes in technologies and the fluctuating costs of technology goods and services.
- Changes in the rules and procedures during the process have added to the frustration of school districts.
- Private Schools and School Districts are informed of problems with their forms through a FAX message that doesn't identify the problem or even which form is in error. Then, school personnel are required to call the SLC, often waiting for more than two hours on the telephone, often only to find that the problem was just a minor item.

Recommendations

- The E-Rate funding for 1998-99 should be authorized as soon as possible.
- The Technology Literacy Challenge Fund and the Technology Challenge Grant programs should be expanded, providing additional schools and districts the resources to implement effective Educational Technology programs.
- School Districts need to have confirmation of the amount of E-Rate funding that will be available as they develop budgets for each school year.
- The funding source for the Universal Service Fund program should remain the same.
- The distribution system in the E-Rate program needs to be simplified with attention given to reducing the workload upon the thousands of educators attempting to implement it. Other distribution styles exist, for example, direct grants to school districts based on poverty level, rural status and size to a small degree, that could be infused into this program to the benefit of all involved.

Overall, there is great support for these programs and they should continue to be funded and implemented as they provide for essential, important needs of students, teachers and schools. While the start of the E-Rate effort has suffered during it's initial implementation and from conflicting political forces, we urge you to allow the distribution process concerns to be addressed for the future while the funding moves forward to schools now.

Chairman BLILEY. Mr. Sloan.

STATEMENT OF TOM W. SLOAN

Mr. SLOAN. Thank you for this opportunity to testify today on behalf of the American Library Association.

I am Tom Sloan, a member of the ALA Committee on Legislation and the State Librarian of Delaware. There are many reasons why federally funded educational and information technology programs are essential to the success of libraries and schools. I will speak today about the Library Services and Technology Act, LSTA, and the E-rate telecommunications discounts under Universal Service.

Chairman BLILEY. Can't hear you up here.

Mr. SLOAN. Let me switch. Sorry.

Thank you.

The E-rate is a logical partner with LSTA, Challenge Literacy Grants, and other ESEA titles in having a critically important impact on schools and libraries. LSTA is the major Federal library program that provides funding to develop, implement, and evaluate innovative library and technology services. LSTA has been an excellent program for providing critical seed moneys. These moneys promote access to resources in all types of libraries, and support the deployment of library and information technologies across the Nation.

Many State library agencies provide statewide projects through combining State and local with Federal LSTA funds. Examples of these projects include Sailor, Maryland's statewide public network connecting libraries, schools, and government agencies, and Pioneer, Utah's online library, which involves the combined efforts of public libraries, public and higher education, the Utah education network, and the Utah State government.

Alec Brown, a Hockessin, Delaware entrepreneur, credits his electronic public library system with helping him land $750,000 in equity for his Chesapeake Composite Corporation. The electronic library system Mr. Brown used is available due to substantial LSTA funding. LSTA is a working partnership between the Federal Government, States, and the Nation's libraries. LSTA works very well and merits continued congressional support.

The E-rate program will provide critical assistance in addressing the substantial costs of establishing and maintaining connections to local, State, and national information infrastructures. In many libraries, these telecommunications services must be implemented with little or no increase in local library funding. Libraries and schools are facing a great challenge. How do we meet the needs of the American public for access to electronic information resources? This critical challenge will not be met if libraries do not have affordable telecommunications services.

What do I mean by affordable? For example, the Greenwood Public Library in Delaware serves a rural population of 4,000 people. The Greenwood Library users have greatly benefited from connecting electronically to all the libraries in Sussex County and the State. Through telecommunication networks, the library borrows and loans books statewide, provides access to more than 1,600 full text magazines and journals, and links library users to local, State, and Federal Government information and services. The library has a total budget of less than $20,000 a year to purchase all materials and can currently only afford a 56K line for network access. The current cost of a more adequate T-1 line service is $450 a month, or approximately 30 percent of the total amount of the library's materials budget.

The Greenwood Public Library is located in a school district in which 51 percent of the students are eligible for free or reduced lunch. The E-rate program will provide an 80 percent discount in the cost of the Greenwood's telecommunications services. With this discount, a T-1 telecommunication connection is affordable for the Greenwood Public Library.

In 1997, the national survey of U.S. public libraries in the Internet found that over one-half of America's rural public libraries offer no Internet access. The E-rate program is essential for libraries to provide access to the vast resources of the information infrastructure if we are concerned about users access regardless of geographic location, socio-economic status, age, or physical ability. Libraries are community-based digital gateways for everyone.

In a recent study of Pennsylvania libraries, over one-third, 34 percent, of the library users had no other access to the Internet other than their library. The 1998 National Survey of Public Library outlets found that nearly two-thirds of all public libraries that are connected are connected with speeds no greater than an analogue modem, which is the speed normally available to most home users. The respondents to the survey cited telecommunication fees as the No. 1 difficulty faced in providing the public with access to electronic networks.

Now, I've heard a lot of comments from people about all the programs that are available for this. In Delaware, we search extremely hard for funds to support ongoing telecommunications costs for libraries. I cannot recall today or in any of our prior work, a single Federal grant program or corporate grant program which funds the ongoing costs of telecommunications services for all of the Nation's libraries and schools. Not a single program am I aware of that will fund those ongoing costs with a commitment to all schools and libraries in the Nation.

The American Library Association commends Congress for passage of the Telecommunications Act of 1996. The Act is a comprehensive effort by Congress to support libraries and schools in meeting the ongoing telecommunications costs. Thousands of libraries have responded to the call from Congress to establish, extend, and enhance, the information infrastructure for the American public. The E-rate telecommunications discounts under Universal Service will provide critical assistance to libraries and schools in connecting to the resources they need to succeed.

The American Library Association seeks your support for the Library Services and Construction Act, and the E-rate telecommunications discounts under Universal Service. These two key Federal programs provide essential support for libraries in meeting their community needs.

Thomas Jefferson stated: "a democratic society depends upon an informed and educated citizenry." America's libraries are at the forefront of supporting a literate and informed public. Our libraries must succeed if we are to meet the needs of a 21st century democracy.

Thank you for this honor to speak to the committees on these important matters.

[The prepared statement of Tom W. Sloan follows:]

PREPARED STATEMENT OF TOM W. SLOAN ON BEHALF OF THE AMERICAN LIBRARY ASSOCIATION

Thank you for this opportunity to testify today on behalf of the American Library Association. I am Tom W. Sloan, a member of the ALA Committee on Legislation and State Librarian of Delaware.

There are many reasons why federally funded educational and information technology programs should continue. I will speak today about the Library Services and Technology Act (LSTA) and the e-rate telecommunications discounts under universal service.

I will speak today about the Library Services and Technology Act (LSTA) and the e-rate telecommunications discounts under Universal Service.

The e-rate is a logical partner with LSTA, Challenge Literacy Grants and other ESEA titles in having a positive impact on libraries and educational programs for k-12 schools.

LSTA is the major federal library program that provides states and libraries with funding to develop, implement, and evaluate library and technology services.

LSTA has been an excellent program for providing critical seed monies for promoting access to resources in all types of libraries and supporting the deployment of library and information technologies.

Many state library agencies provide statewide projects through combining state with Federal LSTA funds. Examples of these projects include: SAILOR, Maryland's statewide public network, connecting libraries, schools and government agencies; and PIONEER, Utah's online library which involves the combined efforts of public libraries, K-12 and higher education, the Utah Education Network, and the Utah state government.

Alex Brown, a Hockessin, Delaware entrepreneur, credits his electronic public library system with helping him land $750,000 in equity from an investor for his Heaspeak Composites Corporation.

The electronic library system Mr. Brown used is available due to substantial funding from the Library Services and Technology Act.

LSTA is a working partnership between the Federal government, states and the nation's libraries. It works well and merits continued support.

The e-rate program will provide critical assistance in addressing the substantial costs of establishing and maintaining connections for libraries and schools to the local, state and national information infrastructures.

In many libraries, these telecommunication services must be implemented with little or no increase in local library funding.

Libraries and K-12 school colleagues are facing a great challenge.

How do we meet the needs of the American public for access to electronic information resources available commercially and in the public domain?

This critical challenge will not be met if libraries do not have affordable telecommunication services.

What do I mean by affordable?

For example, the Greenwood Public Library in Delaware serves a rural population of approximately 4,000 people.

Greenwood Library users have greatly benefited from connecting electronically to all the other libraries in the county and the state.

Through telecommunication networks, the Library borrows and loans books statewide, provides, access to more than 1,600 full journals and magazines, and links users to local, state, and federal government information and services.

The library has a total budget of less than $20,000 a year to purchase all materials.

The current cost for a T1 line service is $450 per month or approximately 30% of the total amount of the library's materials budget.

The Greenwood Public Library is located in a school district in which 51% of the students are eligible for free or reduced lunch.

The e-rate program will provide an 80% discount in the cost of the library's telecommunication services.

With the discount, telecommunication services are affordable for Greenwood.

We are fortunate in Delaware to have established basic connection for all our rural libraries to local, state and national information networks.

The *1997 National Survey of U.S. Public Libraries and the Internet* found that over half of rural libraries in America are not offering any Internet access.

The e-rate program is essential for libraries to provide access to the vast resources of the information infrastructure regardless of a person's geographic location, socioeconomic status, age or physical ability.

Libraries are community based digital gateways for everyone.

In a recent study of Pennsylvania libraries, over one-third, (34.5%) of library users had no access to the Internet, other than at the library.

The *1998 National Survey of Public Library Outlet Internet Connectivity* found that nearly ⅔ of public libraries that are connected to information networks are at speeds no greater than that of analog modems currently available to home users.

The respondents cited telecommunications fees as the number one difficulty they faced.

The American Library Association commends Congress for passage of the Telecommunications Act of 1996.

The Act is a comprehensive effort by Congress to support libraries in meeting their telecommunication costs.

Thousands of libraries have responded to the call from Congress to establish, extend, and enhance the information infrastructure for the American public.

The e-rate telecommunications discounts under Universal Service will provide critical assistance to libraries in connecting their users to the resources they need to succeed.

The American Library Association seeks your support of the Library Services and Technology Act and the e-rate telecommunications discounts under Universal Service.

These two key programs provide essential support for libraries in meeting the needs of their users.

Thomas Jefferson stated, "A democratic society depends upon an informed and educated citizenry."

America's libraries are at the forefront of supporting a literate and informed public.

Our libraries must succeed if we are to meet the needs of a 21st century democracy.

Thank you for this honor to speak to the committees.

Mr. GOODLING [presiding]. Thank you.

I don't know who arranged the order, but it couldn't have been arranged any better, I don't believe, ending up with those who are on the firing line, who are blessed with our rules and regulations and inflexibility, et cetera.

Dr. Roberts, you indicated that we have to make sure students are prepared and then you also indicated that there's money available for teacher preparation. And, of course, I want to put that on top of the pile, because I've gone through the National Defense Education Act, which blew billions of dollars—great idea. Only problem is the salespeople were outstanding when it came to talking to the superintendent and the principal. Unfortunately, those of us who were in the classroom had no idea what they were purchasing or how you use it. Most of it has collected dust. I don't know where it is now.

But, again, the same way with new math. To the old math teacher that meant no problem with them, but to the elementary teacher, it was scary and nobody prepared them or trained them. So I hope that a lot of that effort is going into preparation of the teacher.

Dr. Joyner, you indicated that—oh, I do want to ask one question of Dr. Roberts.

I noticed that when your budget came up, you level funded the Technology Literacy Challenge Grants, where you can leverage private sector money. On the other hand, you decided to have sizable increases in the Technology Literacy Challenge Fund, which doesn't give you the opportunity to get those non-Federal resources. Was there a reason for that?

Ms. ROBERTS. Yes. I'll be happy to explain that. In fact, We requested level funding for the Innovation Challenge Grants because we have enough money in the current amount of funding, the $106 million, to fund a new competition in 1999. What last year's funding level reflected was an unusual number of set earmarks from the Congress that would not be included in the budget in this fiscal year. So, rather than simply continue to ask for increases, what we did was look at what we needed to fund a new round of grants and the $106 million request will enable us to continue to fund the existing Challenge Grants and have a new competition.

I just want to say something about teacher training. You and I have talked about this before. You are absolutely correct. I think we have learned a lot, and what particularly encourages me about both the Challenge Grants and the Technology Fund moneys is the way in which we are seeing the money support teachers in their use of technology. Thanks to US WEST, thanks to the efforts of AT&T, we have some wonderful models that people are drawing on. For example, in Rhode Island this summer, more than 900 teachers were, in fact, doing what US WEST had done in their 14 States—receiving a laptop and 2 weeks of intensive training, but training provided by teachers, teachers who know what they're doing, not high-priced consultants coming in from the private sector. Our technology money worked with—leveraged the Rhode Island Foundation support for the laptops so that by the end of next year, one out of every three teachers in Rhode Island is going to be an accomplished user of technology and connected to their fellow colleagues across the State.

Mr. GOODLING. Dr. Joyner, we'll probably be calling on you on other occasions because we, you know, there are 535 plus of us, and we all have wonderful ideas; and they get into legislation and we think there's seven hundred and some education—somehow related to education programs spread out over every agency downtown. We think there are hundred and sixty some job training programs, so we'll probably be coming back to you to find out, you know, how well are we coordinating these because now we're talking about thirty some technology programs spread out over everybody. And it's kind of frightening, so we'll probably be asking you in the near future where do we stand on coordination and those kinds of things. And I was happy to hear both Ms. Prancan and Ms. Reznick indicate that all of this is worthless if people aren't trained to use it, because, of course, that's the name of the game. Mr. Frey, I won't ask you what that book weighs, but I hope all of my colleagues, and particularly I hope Dr. Roberts sees and others what we do to you folks out there on the firing line. If the district is fortunate enough to have somebody or some people who are paid, as a matter fact, to go after these grants and to catch up on all the changes that come out everyday.

Ms. ROBERTS. Congressman Goodling, if I could just say something. The Technology Fund required a 4-page application process.

Mr. GOODLING. Good, I think if you work at it, you can probably get it down to one. And then, don't change it every other day. Mr. Sawyer.

Mr. SAWYER. Thank you, Mr. Chairman. Thank you for your leadership and Mr. Bliley's and your colleagues on this side of the table for putting this hearing together. It really is like an old home week for me. I served for a decade on your committee and under your leadership, and the chance to come here today talking about programs like Eisenhower and the Technology Grants on which both you and I worked together to put them in place—the kind of concern that we had when we did the National Literacy Act, to take programs that have been scattered across Washington, bring them together, give them focus and drive them to local levels is really the kind of thing I know that you continue to want to do with technology.

We've been down this road before. We talk about the GI Bill, but what this really reminds me of is the effort that was made by Justin Morel a century and a quarter ago to take the growth of the Nation and build together with the private sector railroads the land grant colleges of the United States that fundamentally changed Nation building in the United States. That's really what we're going through here today. And if there are some imperfections in the E-rate program, let's fix them so that this thing can be made to work. It's critically important if we're going to do the kinds of things that represent the innovation that we heard talked about all across this table, up and down, all morning.

Let me just ask one question, and I ask it of each of you. Earlier this year, Kent State University, in my district, put together a grant—leveraged a grant from AmeriTech to build what they call their university school classroom that allows fundamentally researchers to study students as they complete their classroom assignments using a variety of different kinds of technologies. The project is changing the way teachers teach, the way they develop curriculum, and students learn, at the same time. The two are really teaching each other about what works, and some of the things about what may not work intuitively we may have thought would.

I'm particularly interested in the way in which not only our schools, you're learning to use this technology as well as libraries, but the degree to which we are tracking external information sources, the way students and teachers make use of them, those that are most useable and those that are not, the way the library users do the same thing, and, in addition, in libraries, the way libraries themselves become external sources for others.

What kind of work is going on today to measure, evaluate, to assess and make accountable those kinds of measures of technology applications that go beyond that individual classroom? We'll start with you, Dr. Roberts?

Ms. ROBERTS. Well, I know that a number of our Innovation Challenge Grants have very rich and strong evaluation components built into them. And it is very interesting to see how technology is really changing the way in which we gather information.

I don't know of anybody who is directly doing what you describe, but the State of Nebraska is——

Mr. SAWYER. Do you believe it would be useful and important to do that?

Ms. ROBERTS. Yes. And I think it's very do-able, because the commercial sector already does it. There are things called "cookies," which, as you well know, track everything that you do on the Internet. You could be tracking, most importantly, the kinds of educational ways in which students are using technology. But just as an example, Nebraska has teachers periodically reporting online how they are using the Internet, and what kinds of lessons are being engaged, what students, how long. It's painless because teachers literally get online; and they add the information and they go right back to their work.

Mr. SAWYER. Mr. Sloan, I know libraries are particularly sensitive to the privacy issues. What it would be possible for libraries to engage in this kind of measurement and still preserve the confidentiality and privacy of your users?

Mr. SLOAN. I can tell you about a very specific project that we're actually doing in Delaware, where we have provided a digital library, and we are currently involved with Drs. Charles McClure and John Bertow, who are evaluating the digital library through three ways. They are making site visits to talk to library staff and library users regarding their use and how they use the digital resources. They have conducted an extensive log analysis of our Web site and broken out use trends, locations of users; and we have learned a great deal about these virtual users and what they need and where they're coming from. And we are also going to provide I believe the first in the Nation pop-up online surveys, so when you visit various parts of the digital library, you will be asked to complete a brief survey on your use, the ease of use, and why you have come to the digital library, and how you will use this information. That is going on and I will point out that the Library Services and Technology Act is funding that type of innovative evaluation of technology.

Mr. SAWYER. Thank you, Mr. Chairman. I see my time has expired.

Mr. GOODLING. Congressman Shimkus.

Mr. SHIMKUS. Thank you, Mr. Chairman, before I spill water all over me, but I caught it.

Mr. Chairman, you'll recognize this schematic here we received today. And I'd like to submit it for the record if I may.

Down here is technology. Over here is the Education Department. Over here is the Commerce Department. And all these lines represent the problem I think partially that Dr. Joyner addressed, so I'd like to address my comments initially to Dr. Joyner.

In adding up the numbers in your testimony, Federal funding for technology programs in 1998 could be as low as $565 million or as high as $8 billion. Why don't we know how the money is spent?

Ms. JOYNER. All right. Let me say first of all: the schematic didn't come from us, so, since I haven't seen the schematic, I can't speak to that.

Mr. SHIMKUS. But you don't want to see it.

Ms. JOYNER. But I understand the concept.

We know how much money is spent on technology where the program is targeted for that purpose and goes to schools and libraries.

That's the $565 million, which we are assuming is all for technology. And, of course, we know about the E-rate amount and what that would be eventually.

For the other programs, the majority of them, we don't know because they are not required to report that sort of information. An example is Goals 2000. States that receive the funds are not required to say, up front, the purposes for which they will use it, nor to report their use to the Department of Education. So, when the Congress wants to know, for example, the uses being made of those funds, it's necessary to do a specific study. We have one under way right now, and we will be reporting in November. So at that time we will have some information about the use of technology through that stream of funds. But for most of these programs that serve much broader purposes than just technology or that serve target groups other than schools or libraries, in balancing flexibility and accountability, the decision that the Congress has often made is drive the decisionmaking down to the State or local level, and accept the tradeoff, which is a lack of reporting upward about what is done with the money.

Mr. SHIMKUS. And, Mr. Frey, referring back to your testimony and also—I understand. I was a former teacher myself for 4 years. Given the choice, would you rather have more or less Federal involvement regarding resources for your local school district?

Mr. FREY. Well, the one-word answer would be less. I think if we could obviously have more local control we can identify the needs of our community and address those much more effectively. One of the things with technology that's important to realize is that the needs of my community in a suburban population are much different from one in a rural population. And that's really based on the workforce needs, in my estimation, and what that population needs. So we at the local level, have a much better idea of what we need to do with technologies, what we need to do with curriculum, and apply that to students. And I think it's best held in that framework—that we need to have that control.

Mr. SHIMKUS. Let's just, and go back to the $565 million or the $8 billion—I mean that's a pretty wide discrepancy—conservatively say there's $4 billion spent. Would it be easier to write a check to the local school district than funnel it through the 50,000 different iterations of the Federal Government? And I refer back to Mr. Frey.

Mr. FREY. Absolutely, it would be easier. But I think there does need to be some level of accountability. And I say that because in my experience in our State, we have some school districts that are doing an outstanding job with technology, and others that simply don't have the resources to address technology appropriately. They would love to have that money to invest in computers to put on their desks. But in an urban district very close to mine, I can tell you that there are computers that were purchased in 1993 with government funds, 286 IBM computers, still boxed and in a warehouse because they could not be deployed. The did not have the staff to put them out there. And so that type of problem concerns me. I think that we do need to look at the a broader scope program where there's oversight of technology in education. Dr. Roberts has the ability probably to pull that together, but let's get the best and the brightest technology people in education together. And let's let a group of those educators help to oversee the implementation of technology in the country so that we do have some sense of equity.

Mr. SHIMKUS. Thank you, Mr. Chairman.

Mr. GOODLING. I have the list in the order they arrived. Eshoo, Roemer, Fattah, Deutsch, Romero-Barceló, Scott, and you're going to yield to Ms. Woolsey and then take your turn when we get back. Is that what I understand? The gentlelady from California.

Ms. WOOLSEY. Thank you, Mr. Chairman. Thank you, Mr. Scott, for letting me go ahead of you.

Mr. Chairman, I have one request before I talk to the panel and that's that our Education and Workforce Committee have chairs like these we're sitting on. I believe we deserve them. They're really comfortable.

Mr. GREEN. Mr. Chairman, Mr. Chairman, if I could say, we just got those chairs recently. Some of us who were down on that tier earlier, we just got those.

Ms. WOOLSEY. Well, you did good.

Mr. Chairman, thank you for having this hearing with the Commerce Committee, and thank you panel. This has been so very, very interesting. I have no question that the E-rate is important. Technology in the classroom is important. And you have just reassured me all the way along. I'm very, very lucky. I represent the district just north of the Golden Gate Bridge, across from San Francisco, Marin and Sonoma Counties. And it's a very high-tech involved community. Our parents, our businesses, and our educators work together so that the latest technology is a part of our education system for the most part. But there are schools that still need help, and we're going to continue to work in that regard. I was at a school in the community I live in. I live in Petaluma, California, and I was at a school called Valley Vista Elementary School, just a week ago. That school is fully wired. They have a new multimedia laboratory. They've made it possible for every classroom to be wired and to have computers. They have 17 pentium and 4 486 computers, and they are building four computers from scratch. The kids are building them. So, Mr. Frey?

Mr. FREY. Frey.

Ms. WOOLSEY. When we talk about the work, technological workers and our workforce, we're not just talking about people knowing how to use a computer, both for education and for their job in the future, we're talking about learning how to build them, and design them over time. I mean, this is what our children need to have the opportunity to be involved in. And every one of you have helped me know how important this is. But let's talk about parents. We know that we have to train and educate the educators, and that many of the students know more about computers than their teachers do. But, you know, we're coming so quickly that the educators are much more comfortable. Now, don't students have a better chance of being technologically literate if their parents are learning along with them? Or does it matter? And I guess I'd ask that of Dr. Roberts and any of you that want to answer that.

Ms. ROBERTS. Well, certainly, we see tremendous differences when we go into classrooms with students who've had knowledgeable parents who are supportive, not just of using computers at home, but books and reading and going to the library. All those things go hand in hand. But we have a number of examples, particularly in the Innovation Challenge Grants, of projects that have very deliberately gone out to engage the very parents who wouldn't have these experiences, and to try to build programs that bring them up to speed with their kids. I just came from Berkeley, where I was just incredibly taken by the outreach effort; and it takes a lot of effort. Certainly, public libraries can be part of this effort. School districts that open up their classrooms at night and the evenings can be part of this effort. We know how to help parents and we know how to engage them. Technology is something they want to know about. I think we can—within the programs we have and within the resources we have—we can do a lot more.

Ms. WOOLSEY. Thank you. Would any of the other of you—you want?

Ms. PRANCAN. I might just add with our WOW truck that goes out and trains people. We have family sessions, and it's remarkable because the parents are very interested in learning. But I think the thing that's important about those is that the kids are helping teach the parents. When we did the Tech Academy, the kids are the ones who are leading classes in community centers, in housing projects. They are capable, and they are teaching. And it's wonderful to see kids in a different role with their folks and with other adults, than they have been in the past. So, it's fun.

Ms. ROBERTS. If I could just add one thing. We have done something that has been tremendously useful, which is the Parents' Guide to the Internet. It's not only available free of charge to any parent in America, but it is also online.

Ms. WOOLSEY. That's good. We should publicize that.

Mr. SLOAN. Congresswoman, one comment you made regarding your community and other communities. I think one of the real strengths of the E-rate program is the fact that it is based on a sliding scale that recognizes the individual conditions, financial conditions of a community. In Delaware, we have districts perhaps like yours, which are not in very much need. We also have districts that have 70 percent of their population with children who are eligible for reduced lunch. So, the E-rate program, in whatever it progresses, needs to continue, I believe, to have that sliding scale and that addresses, I think, the heart of your issue.

Ms. WOOLSEY. And just before—wait let me just say one thing. I want to respond to this. And that's the school I talked about has one of the highest Title I ratios in my district and some of the highest test scores.

Mr. WAZ. Now, we would agree it's extremely important that the computer experience become part of the family experience, not an alienating experience, which it can be in many households. And we're hopeful that the plummeting costs of personal computers contributes to that.

We're also hopeful that as Internet-type capability moves to the television set, through the digital set top box that cable companies are providing through Web TV, Worldgate and other such services that, again, it will be integrated more into everyday family living.

Ms. WOOLSEY. Thank you all very, very much.

Mr. GOODLING. Mr. White?

Mr. WHITE. Thank you very much, Mr. Chairman. And let me welcome you to our hearing room. We appreciate having this joint hearing today. And, Mr. Fisher, let me welcome you as a fellow Washingtonian, we're really pleased to have you here. It's especially important since I think you're the only panelist from west of the Alleghenies, so you're representing about 2,800 geographic miles in the United States. And we're very happy to have you here.

Mr. FISHER. Quite a load.

Mr. WHITE. It's quite a burden. That's exactly right. And we found ourselves in that situation quite a bit back here in Washington, DC.

I also apologize for having come in a little late and not hearing your earlier statement. We had a primary in our State, as you may know, last night, and so I was up pretty late following those returns.

But I wanted to talk to you a little bit about the technology program in our State, and just get a sense for how things are over on your side of the mountains. I represent, you know, an area of suburban Seattle. We have Microsoft on one side of my district, and Bill Gates' house on one side. We also have Kitsap County on the other side. And yet, pretty much consistently throughout my district, we have a pretty high percentage of schools wired for computers, wired for the Internet, and making very heavy use of the Internet. In fact, Kitsap County may be further ahead than other parts of my district in terms of getting schools wired and making effective use of that. And I just wanted to get a sense from you for how are things going in your part of the State and had we been able, even at this stage of the process, before the E-rate program really is even started to be implemented. Have we made some progress without the aid and help of the Federal Government?

Mr. FISHER. We have made some progress. You're probably aware of the K20 Network Program that is being implemented right now in Washington State. It's going to connect all 4-year colleges, community colleges, and K-12 schools into a large network statewide, which is then connected to the Internet and the rest of the world. And its implementation is moving forward and we're beginning to connect school districts across the State probably practically on this day is when they're starting. And that's had significant impact on, and is going to have a significant impact on the access and so forth to the Internet and resources. However, it does not go any further than the door of the district. It brings a connection to the districts, and then it's the districts responsibility to share that connection throughout all of the other buildings and locations within the district. And that's where the E-rate program is so important. And then schools have the responsibility to take that connection and share it within the school through a network.

Mr. WHITE. You've got 25 school districts that you're focusing on your side of the mountains. How many of them are now participating in the network? I mean, all they all wired up to the network? Or just some of them?

Mr. FISHER. Twenty-two of our districts have a connection.

Mr. WHITE. Okay. And can you just give us a sense for the ones beyond the connection, how far the connection goes into the school district. Is it a very great deal?

Mr. **FISHER**. That's the challenge. It really varies widely from one district to another. Some districts are completely connected, and others have it into one building, and one building only. And that was really the place where we were looking forward to E-rate support to help us to get that critical piece pushed ahead.

Mr. **WHITE**. Can you be a little more specific because I know—I've got 11 school districts in my district on the western side of the mountains, and I think we have about 75 percent or 80 percent penetration to the classrooms just in general in most of the school districts on our side of the mountains. I take it that may be higher than what you're seeing over in eastern Washington?

Mr. **FISHER**. That is higher. I would say actual penetration to each classroom is probably at 50 percent.

Mr. **WHITE**. Fifty percent, so okay.

Mr. **FISHER**. And there are other ESDs, regional areas that would have a lower percentage.

Mr. **WHITE**. So, but in general, even on your side of the mountains, which is a pretty rural area——

Mr. **FISHER**. Yes, it is.

Mr. **WHITE**. You still think that 50 percent of the classrooms are already wired?

Mr. **FISHER**. I believe so.

Mr. **WHITE**. Okay, and that's before we really even have started off on the E-rate program. So this will help us, I would think, dramatically get that final 50 percent.

Mr. **FISHER**. Right.

Mr. **WHITE**. Let me ask you and also perhaps, Mr. Frey, you know I noticed that everybody on the panel today is a technology person, and I have great respect for that. I'm the chairman of the Internet Caucus, and something that I've focused on a lot. But you two may have the closest connection to an actual school district. And I'd just like to ask your reaction to the following question. If I were a local school district, and the Federal Government said they'd like to give me a $1 million, would I spend, in your view, would you spend that money necessarily on technology or are there other places where even recognizing, as all of us do, how wonderful technology is and how many things it could do, I wonder if there wouldn't be other places where a school district might decide to spend some of this money. For example, there might be school districts that would spend it on enhancing the breakfast for children who don't have enough to eat when they come in the morning. And I know that all of us, as technology people, think technology is great. But I'd just like to get your thoughts on whether we're putting too much money into technology or perhaps not giving the school districts enough ability to decide for themselves what the best way to spend this money might be.

You want to take that one first?

Mr. **FREY**. He had cold feet. If you gave me a million dollars—in a school district, the first thing that I would look at—related to technology would be resources—people. I think if you go back to when we started NASA, and we wanted to go into space, it took a lot of people to make that happen. Not the building of the rocket, it took people to make that happen. The same thing holds true with technology in schools. We need people to, and the proper resources to make technology happen. Most school districts do have the means to put computers in classrooms and to bring Internet to the door and deal with that. We do need E-rate to help us with that. But above all else, we need people to make it happen. And we need the right people and very talented people. And they're just not there right now. So that's how I would address that.

Mr. Fisher. I would say that it would vary greatly from district to district. Districts in rural areas have much higher telecommunication costs and challenges, and they would probably would address—would have to address a greater percentage of funding in those areas. But it has to be a complete package. You have to have the connection. You have to have the equipment. You have to have the software, and you must have the training. And you must have the support. And all of those pieces are essential for an effective educational technology program. Because without the support to keep the things working, and, you know, then you're giving a presentation to your classroom and things die.

Mr. Goodling. I'm going to have to stop the passing of the microphone.

Mr. White. Absolutely. I thank you, Mr. Chairman. Thank you for your indulgence.

Mr. Goodling. And check to see whether Mr. Scott checked with Mr. Green before he traded away Mr. Green's spot for Ms. Woolsey, because it was Green, Scott, and then Woolsey. Have you checked with Mr. Green?

Mr. Green.

Mr. Green. I mean, what I'll do is agree to split my time, but could I ask for some time from Mr. Scott? And he didn't respond a while ago. I guess our old times on the committee was forgotten, but anyway.

Mr. Chairman, I'd like to submit an opening statement for the record.

[The prepared statement of Hon. Gene Green follows:]

Prepared Statement of Hon. Gene Green, a Representative in Congress from the State of Texas

In the 1990's we have seen an explosive growth of technology in our day to day life. Schools especially have looked to technology to increase student learning and participation. No longer do classrooms use over head projectors and black boards; schools are moving towards VCR's and lap top computers. This national movement has lead to a national debate over whether we should be investing so much into technology and education.

It has been estimated that almost 60% of jobs in the future will be technology oriented. We have an obligation to make sure our students are prepared for the future. There have been many efforts both by the public and private sector to make sure that our classrooms have computers and are wired for the internet. One of the goals of President Clinton has been to wire every school to the internet by the year 2000 and to make sure that every student is technologically literate. Since 1994, communities all across the country have had NetDays. NetDays are a community effort where, local officials, business, parents, teachers, and students all come together to wire their own schools. I have participated in several NetDays in my district. We will best serve our students by making sure all of our classrooms are wired, and that all students have access to computers and the internet.

Recently many questions have been raised about the effectiveness of federally funding educational technology initiatives like the e-rate program. Opponents have pointed to many examples such as the percentages of schools that are wired to the internet which varies from 25%-80%. Also, opponents note that federal funds, totaling almost $10 billion spread over 27 programs, which should be going to the direct education of our students is being diverted to buy computers. They believe that the private sector and communities need to do more to purchase computers and to wire schools.

We have to realize that being computer literate is vital to being successful in the future. The question then arises if we are doing enough to prepare our students. The percentages of schools that are connected to the internet seem to be unusually high. Does the number of schools that are connected actually reflect the number of classrooms that are connected? It has been brought to my attention that this unusually high percentage reflects the number of schools that have at least one internet connection anywhere in the school. We need to figure out how many classrooms are connected, because it is in the classroom where instruction occurs. Also, the $10 billion in federal funding that goes to help wire schools and purchase computers seems high. Out of the 40 programs only 4 actually go to the purchasing of technology and access to the internet.

If our students are to be ready for the future they have to be computer literate. We need to create a stronger partnership between our schools, communities, businesses and governments. This partnership will help everyone and give our students the tools necessary to succeed.

Mr. GREEN. It's good to be here with a lot of former colleagues on the Education Committee. This issue is important not only for education, but also for the Commerce Committee.

Let me follow up on my colleague from Illinois' schematic. I haven't seen a copy of it, but I'm sure the argument that's going to be used in the next few days is why shouldn't we block grant it? I enjoyed the response from Ms. Joyner because of all the programs that are on that schematic, the one you said that you haven't been able to have accountability for is Goals 2000, which I support. But it's also the one that transfers the most authority to the local and State level, and we in Texas have used the Goals 2000 moneys for some great programs. But the accountability is not there. And that's the bottom line. And so, in the next few days, on the floor of the House, we'll be debating whether we're going to block grant every education dollar. And it may be good because that decision is better locally. But it's accountability that we're concerned about to make sure those funds are spent on programs. Goals 2000 is great, but, again, are we going to just transfer everything so it may be spent for Astro turf on a football field instead of on computers in the classroom. That's my concern about your schematic, and I would challenge you that the Department of Defense schematic is worse.

So I know it doesn't make it right. But I want to make sure that we don't experiment with education.

My only question is to Ms. Reznick, and I know you may not be able to answer it. After the controversy over the E-rate, and AT&T originally and the other long distance carriers decided to break out the universal connectivity charge. My concern all along has been that we've had a universal service fee since the 1930's, and I've been told that the E-rate comprises about 25 percent, but the universal service charge that's been around for 60 years, makes up 75 percent of that. When my constituents get their bills, and I look at my own bill, they tell me, that their phone bill is too confusing, and I can't tell if I got a rate reduction in my bill because this is broken out. And that's my question of not only AT&T, but the other carriers who made this decision because the customers can't tell. And did they pay that charge in their bill when it wasn't broken out? Now, that it's broken out, did we see a reduction in AT&T, and MCI, and everybody else? You may not be able to answer that, but that's what a lot of members of the committee would like to know. Maybe you can take it to someone and they could provide it for us.

Ms. REZNICK. You're right. I may not be able to answer that.

Mr. GREEN. I know the Foundation has done good work, and I appreciate the 500-plus million. In fact, don't stop. In fact, don't stop now because we probably need it more if we have to cut the E-rate.

Ms. REZNICK. Right. I will say that the decisions that the company has made about the E-rate have been business decisions based on the needs in a very competitive industry, which, I know, you're all painfully aware of. So, those are business decisions, and, in this time, we're forced to make very difficult choices. So if you want more detailed information about the actual business case for that, I'd be happy to get back to you and have our business managers respond to that.

Mr. GREEN. Okay. If you would and I'm sure other members of the committee would be interested also. I know those business decisions have to be made, but, again, as one who voted for E-rate. And yet for the last 60 years most of the funding was hidden for all practical purposes into the basic bill. So I appreciate that.

Mr. Chairman, I thank you, and I miss the Education Committee and the issues. And it brings back good memories, but I'll yield the rest of my time to my colleague from Virginia.

Mr. GOODLING. We'll add a minute to his time when it's his turn.

I did want to indicate that in dollars to the classroom it would be pretty difficult to get a football field in the classroom.

Ms. Wilson.

Ms. WILSON. Thank you, Mr. Chairman. I must apologize to the—those who have come here to testify today that I wasn't able to be here for your full testimony. I do have a question of Ms. Prancan from the US WEST Foundation. I know US WEST has been marvelous in my home State in contributing and partnering with the schools, and I wonder if you would comment on whether this duplicates previous answers, I apologize, on your assessment of what impact things like the E-rate will have on private sector and foundation support for technology in education and that partnership?

Ms. PRANCAN. Well, as you know, US WEST has supported the goals of the E-rate and continue to do so. There's plenty—in our experience—there's plenty of need out there. And so anything that we can do in partnership with other organizations, whether they be other private organizations or governmental organizations, I can't imagine that we would stop wanting to do these kinds of partnerships, irrespective of where the money comes from. So there's plenty of need out there. I was really surprised to hear you guys say that 50 percent of schools are wired. That isn't true in most of the States that we serve.

Ms. REZNICK. And if I could just add to that, as the other corporate spokesman here, clearly, this will not diminish the work that we have been doing. We are committed to maintaining our level of support because the needs are overwhelming. There's enough for all of us to do, and we all need to continue to do as much as we can do in order to have a real impact and make a difference in whether kids learn this way.

Ms. WILSON. Thank you. Dr. Roberts, I did have a question for you, and it has to do actually with something that you just mentioned. And that has to do with the distribution of technology around the country and whether you have information about how many of our classrooms do have first generation or the best technology and how that varies State by State. And what the Department of Education's plans are to provide information to States so that they can make decisions to get their schools up to speed, particularly in poor areas of the country?

Ms. ROBERTS. Well, Congresswoman Wilson, the best data that we have is nationally sampled data. While we have seen continued growth in the access to technology over the past years, the poorest students still lag so significantly behind. Our best data to date tells us that only about 14 percent of those classrooms have access. So, the difference between the rich and the poor schools and the classrooms in the rich and poor schools is really still very, very significant. What I would say to you is that we provide a lot of technical assistance. And we've done everything we possibly can in my little tiny office to help everybody find the resources that are available. The largest and the only direct source of funding—back to the other Congressman—is really not those 40 programs and certainly not the $8 billion that he described—that $8 billion, $7 billion is Title I of the Elementary and Secondary Education Act, and Title I really, truly funds teachers who work with disadvantaged children in reading and mathematics. While some of the Title I schools use a very small portion of their money to acquire technology, the major focus of Title I is teaching reading and math.

Ms. WILSON. Thank you, Mr. Chairman. That's all the questions that I have.

Mr. GOODLING. Mr. Scott, you may have what time you may consume.

Mr. SCOTT. Thank you, Mr. Chairman. I had a couple of questions. And first, Mr. Sloan, this may be a technical question, but you indicated that the T-1 rate costs $450 a month. Did you consider other kinds of connections other than the T-1, like cable service? And I assume the telephone connection would be just technologically inadequate.

Mr. SLOAN. Yes, the library that I cited currently has a 56K connection, which is $190 a month, but that only provides text-based services. We're not able to deliver graphical access.

Mr. SCOTT. Why does it cost $190 a month when you can get connection with AOL or something for $20?

Mr. SLOAN. The AOL is an Internet Service Provider. They do not actually provide you with the telecommunication link. They simply give you a number to call, but you have to have the line in order to call that number to get an AOL service. And then once you get to them as a provider, their cost is to provide you the Internet.

Mr. SCOTT. Well, I guess my question is why does it cost you that much if it didn't cost me that much at home?

Mr. SLOAN. Now, well, a 56K line tariffed in the State of Delaware is $190 a month. That is not the same line that goes into your home. There is a different kind of line that goes into your home. There are ranges—increasing ranges of bandwidth, and the bandwidth that we currently have in place is a 56K at $190 a month. It is about the width——

Mr. SCOTT. Why does it cost you that and it doesn't cost me that at home?

Mr. SLOAN. You do not have—very likely you do not have—very likely you either do not have a 56K line that runs into your office in terms of the bandwidth, the type of line that actually runs to your home.

Mr. SCOTT. I have a 56K modem.

Mr. SLOAN. That is not the same as a 56K line. The modem is a component of your computer which means that it is capable of supporting a 56K transmission. However, if you do not run that over a 56K line, you are using less than the capacity of that 56K modem.

Mr. SCOTT. Okay. I'm learning something. So, what about a cable modem? How close is that to the best of your knowledge?

Mr. SLOAN. The cable installation—and I can certainly defer to the Comcast person—but the cable installations that we have in Delaware do not provide two-way interactive services. They are simply a one-way delivery service, and so consequently the cable installed base is not adequate for telecommunications back and forth.

Mr. SCOTT. Well, I have a cable connection, too, and I get back and forth. Mr. Waz, do you want to comment?

Mr. WAZ. Mr. Scott, it's a—the point is a valid one. The cable—the ubiquity of cable is not quite where we want it yet. By the end of this year, Comcast will have 80 percent of its system served by systems of 550 megahertz or better, 60 percent at 750 or better. Translates into hundreds of channels and the capacity to provide those service. But fortunately, you're pointing out the importance of competition in this area. And in a number of our markets, we've begun to offer a commercial Internet service to institutions and small business users. It does provide a much better price break.

Mr. SCOTT. Thank you. Dr. Roberts, I don't know who this ought to be aimed at, but I'm sure that just putting a computer in the classroom doesn't enhance education all by itself. There are certain, I guess, algebra can be taught better with a computer than not. Current events obviously could be taught better with a computer than not. How do we make sure that the teacher is making maximum effective use of the technology?

Ms. ROBERTS. Well, I think, as Congressman Goodling pointed out early in this hearing, the key is the teacher. The key is the kind of support and resources you make available to teachers. I have never been in a classroom where there is effective use of technology, where the first focus hasn't been on what we want to accomplish educationally. So, you've got to drive all of this from what are our goals, whether it's improved reading, or better writing, or more kids taking math, or better understanding in science. And it always comes back to the teachers. That is why we asked for the increase in the Technology Fund this year because we really believe, from what we've heard from the States, and what we've seen in how the funding is being distributed to the school districts, that the focus is not on buying more computers or getting more technology. You were right before. It is on the people, and it is on providing the support that people need.

Mr. SCOTT. Where does the Eisenhower Professional Development Grants come in in all that?

Ms. ROBERTS. The Eisenhower Grants go by formula to the States and then go to the school districts in very, very small amounts. They focus mostly on science and mathematics instruction. In some cases, the Eisenhower Program professional development activities do incorporate the use of technology.

Mr. SCOTT. Does anybody else want to comment on how we can make best use of the technology and make sure that we're getting the best use?

Ms. REZNICK. I'd just like to add that I think the issue of professional development for teachers in the classroom is a huge one, and one that AT&T has focused on for some time. We've heard a lot about the numbers of computers now in schools and classrooms, connectivity to the Internet. All of that is meaningless unless we have teachers and educators who know how to teacher math and science and English, which is really what this is about. Technology is just a tool. It's a very powerful tool. But it's still a tool. And at the bottom line here is do kids learn any better, any faster, any more with the use of this tool? We think the answer is yes, but someone else pointed out earlier we need to do a lot more assessment and evaluation of what children really do learn via this technology.

Mr. SCOTT. Thank you, Mr. Chairman.

Mr. GOODLING. Are there other questions?

Mr. Shimkus.

Mr. SHIMKUS. Thank you, Mr. Chairman. I'll try to be quick. Dr. Roberts, do you think that the FCC's schools and libraries program should be subject to annual appropriations?

Ms. ROBERTS. My understanding that the intention of the Congress in passing the Telecommunications Act was that the schools and libraries program would fall under Universal Service, and it would operate under the same provisions that the Universal Service Fund works under. What is particularly interesting about the original FCC State Joint Board ruling and the decision as to how this whole program would be implemented was that unlike Universal Service, which has no cap, the schools and libraries portion of the Universal Service Fund does have a cap, in part because this is what the State and Federal regulators wanted. So, no, it doesn't have an annual appropriation. It does not operate the way a typical Federal program operates. And quite frankly, I think the beauty of Universal Service and the placing these discounts under the Universal Service Fund is that it's a shared cost that's built into the whole system. And quite frankly, it's a real win-win. It's a win for education and it's a win for the telecommunications industry, because we are actually growing their market so significantly at the same time.

Mr. SHIMKUS. And back to you, would you not admit that some of the initial applications for the E-rate funds included requests for paint and carpet and other spending other than technology?

Ms. ROBERTS. I have not seen those applications. We've worked very closely with the people at the Schools and Libraries Corporation. And I don't know of any applications that included those types of items. Once the SLC made clear that these funds couldn't be used for those kinds of things, a number of school districts self-audited themselves and went back to their applications and made those corrections.

Mr. SHIMKUS. And the last question for our corporate entities here—AT&T and US WEST—the two telecommunications industries.

Do you require application processes for these schools to receive grants or access? Have you, in any of your processes, in the 75 days after publishing the opportunity for schools to make application, change the application process 83 times?

Ms. PRANCAN. No.

Mr. SHIMKUS. Change it—oh, go ahead. Changed it 40 times? 10 times? One time? Mr. Chairman, I yield back the balance of my time.

Mr. GOODLING. Ms. Wilson, do you have a question?

Ms. WILSON. Mr. Chairman, this is a question for the corporate representatives here, less the Foundation. Perhaps Mr. Waz could answer this for me. It's really a question about the infrastructure that transmits the data, and where we are going with respect to the capacity to rapidly transmit information around the country, whether it's to schools or businesses or homes. And where you think we will be with the capacity to do that nationally 5 or 10 years from now. What does the future look like?

Mr. WAZ. I think capacity is being built out at an extraordinary rate, both as you look at what one might call the Internet backbone, and as you also look at what's being invested in the local communities to be able to provide the link to the home, the link to the business. I've described a bit today about what cable itself is doing in this area, with its broadband infrastructure. Telephone companies are investing widely in xDSL architecture, which I'm sure you'll be hearing plenty about, to provide broadband over telephone wires. Other companies, such as Quest, are building national networks to provide data haul. Satellite companies, from Direct TV, which offers a direct PC service, to Teledesic, which has visions of riding broadband by satellite. There's just an incredible profusion, an incredible profusion of investment in this area out there. And, frankly, I think the reason we're seeing that is the potential for market demand, and the fact that this Congress said, let us deregulate, promote competition, get barriers out of the way, and make this happen. I think you're seeing the fruits of that.

Mr. GOODLING. I'm going to ask unanimous consent to hold the record open for 14 days. Ms. Wilson, will you close the meeting as I am supposed to be speaking clear over on the other side in a couple of minutes?

Mr. SCOTT. I had a very brief question. Dr. Roberts, I think you said 19 percent of Virginia school districts didn't bother to apply for the E-rate, that 81 percent had?

Ms. ROBERTS. Oh, in Virginia. Eighty-one percent had.

Mr. SCOTT. Nineteen percent didn't bother to apply?

Ms. ROBERTS. Well, how do I explain this to you? They have not yet applied. Remember that the first year for this program was in mid-year, and there were a number of school districts who really didn't feel that they were yet ready.

Quite frankly, we originally thought that maybe a third of the school districts would be ready in the first year to apply. We were astounded that overall 67 percent of school districts applied around the country. And in Virginia, you far exceeded the national average.

Mr. SCOTT. Why would a school system not be applying yet?

Ms. ROBERTS. Why would they not apply? Because, in fact, they had to think about what they were ready to do and what they needed. We really thought that every school district——

Mr. SCOTT. Did they miss any money? Did they miss a funding cycle if they didn't apply? Did they lose any money?

Ms. ROBERTS. They missed the first year of support. Yes. But the since Universal Services is something that is in place, one would argue in perpetuity, there is no penalty for not applying because every school and every library is still eligible. There was no penalty in a sense for not applying in the first year.

Mr. SCOTT. Okay, thank you, Mr. Chairman.

Ms. WILSON. [presiding] If there are no more questions for the witnesses, I wish to thank the witnesses, the members of the Committee on Commerce and the Committee on Education and the Workforce for their contributions to this hearing. If there is no other business to come before the committee, the witnesses are excused and the committee stands adjourned.

[Whereupon, at 12:37 p.m., the committees adjourned subject to the call of the Chairs.]

[Additional material submitted for the record follows:]

QUESTION SUBMITTED BY HON. BART GORDON TO AT&T, AND RESPONSE TO SAME

Question: Where do you think the expanded e-rate program fits in the mix of public and private programs?

Response: AT&T believes no single entity alone can support the needs of educating our nation's children. That's why AT&T supports family and community involvement, public/private partnerships, foundation grants and contributions, and federal programs, to ensure schools and educators receive the support and resources they need. AT&T has historically supported the concept and goals of the universal service program, including its expansion through the Telecommunications Act of 1996 to include discounts to advance telecommunications services for schools, libraries and rural health care providers. We support the efforts underway to improve the "e-rate" program so that funding can be offered as soon as possible in an alternative manner.

PREPARED STATEMENT OF NANCY M. MITCHELL, DIRECTOR—EDUCATION MARKET GROUP, PACIFIC BELL

Messrs. Chairmen and members of the committees, thank you for this opportunity to discuss with you SBC Communications, Inc.'s role in ensuring that our nation's schools have at their disposal the proper technology to prepare our children for the rigorous demands of our rapidly evolving society. My name is Nancy Mitchell. I am Director—Education Market Group for Pacific Bell, a subsidiary of SBC Communications, Inc. SBC is a global leader in the telecommunications industry, with more than 34 million access lines and more than 5.8 million wireless customers across the United States. Through its subsidiaries, as well as investments in 10 foreign nations, SBC offers a wide range of services, including local and long-distance telephone service, wireless communications, paging, Internet access, and messaging, along with telecommunications equipment and directory advertising and publishing.

SBC'S HISTORY OF SUPPORT FOR EDUCATION

"Technology in the classroom"—easy enough to say, but a difficult concept to explain and even more difficult to implement. Successful integration of technology in education requires more than a computer on a desk, wires in the wall, or money on the table. All these are necessary components, but without vision, technical support and ongoing resources, "technology programs" can be as flat and one-dimensional as a chalkboard.

The "Digital Divide," a term used to describe the gap between the technology "haves" and "have nots," is not necessarily just a function of money or socio-economic status or urban/rural geography. It's also created when there isn't a balance of leadership, resources, and practical skills. SBC can proudly say that we have a vision of education in America that is not about access lines and computers, but about technology that works for teachers and students. It isn't about technology skills alone, but about information literacy. It's not about technology as an end unto itself; it's about technology as a tool to bend the curve of education in our country. And we put our minds, our money, and our muscle where our mouth is.

Before state and federal governments stepped up to the challenge of funding technology for classrooms and libraries, SBC was engaged in multiple initiatives to jump-start and support local efforts to get schools and libraries on the Information Superhighway. With the advent of government funding programs, SBC has proactively promoted and supported the education community in maximizing their opportunities within these programs.

The Schools and Libraries Program

Let me be clear about SBC's perspective on the federal schools and libraries program. The goals behind section 254(h) of the 1996 Telecommunications Act were not only well intentioned, they were also a necessary recognition that as our society becomes more heavily dependent on telecommunications technology our children must be given every opportunity to develop the skills necessary to thrive within that society. However, SBC's misgivings are not with the language in the Act or its underlying intent. SBC firmly believes that the language was well advised but the implementation has gone severely astray.

What was meant to be a process whereby the FCC's only role was to determine the discounts that schools and libraries would receive from carriers for telecommunications services, somehow evolved into a scenario where the Commission ignored the clear direction of the language and instilled an unauthorized grant program and an unconstitutional tax upon the telecommunications industry. Congress—and these two committees in particular—should reassert its original intent and require the FCC to follow the law.

SBC's Commitment to Education Technology

While SBC has issues around the Federal Universal Service Fund (FUSF) and its sources and processes, there was never a question whether we would help our education and library stakeholders with the complexities of the process. Through contributions of funds, volunteers, workshops, materials, equipment, technology support, hands-on training, and web-based resources, SBC has helped spread the benefits of technology to the broad spectrum of its customer base and beyond. We have a robust history of giving to our communities, and our education community has and will continue to benefit from our three primary contribution streams: funding, technology, and resources.

Funding

When most corporations talk about funding, they are generally referring to the money they give. Money for education is a good thing, and through the SBC Foundation, we have contributed over $81M to education since 1992. In California, Pacific Bell's Education First program has provided over $43M to bring one year's free ISDN service to over 4,000 public and private K-12 schools, public libraries, and community colleges since 1995. In Oklahoma, Southwestern Bell Telephone will contribute $3M over three years in grants to the State Department of Education for education technology. Contributions and grants from Southwestern Bell Telephone (SWBT) in Kansas, Missouri, Texas and Arkansas totaled another $5.8M in 1997 alone.

SBC certainly gives money to education. But there's a broader definition of funding that incorporates the concepts of maximizing value and continuing self-sufficiency. SBC contributes here, too. Both California and Texas have purchasing vehicles which allow schools and libraries to buy access equipment and services at discounted rates reducing the burden and expense of acquiring these services. There are state initiatives, such as the California Teleconnect Fund (CTF) and Texas

HB2128, that provide discounts for schools and libraries that require promotion, process support, and subject matter experts. Pacific Bell has a support center with dedicated resources to process CTF applications, worth about $1M per month in discounts to the state's qualifying institutions. With the Texas HB2128 program, more than 1,900 schools, libraries, and hospitals have been given information in face-to-face meetings and as of June, 1998, over 634 have bought services under discounted rates for an estimated savings of $23M. In both states, workshops are regularly conducted to help schools and libraries to understand and avail themselves of these funding opportunities.

In response to the federal schools and library program, we created and distributed an E-Rate RFP Kit to walk the schools and libraries through the process, the forms, the development of the RFP's technical plans, etc. We developed postings with information and hotlinks on our websites. We conducted seminars and workshops on the process and requirements, along with customer-specific presentations and interactions on how to maximize the availability of funds through FUSF, CTF and other funding opportunities. SBC has dedicated thousands of hours and millions of dollars to process the applications that came through in the first E-Rate "window", and has prepared to do so for the next round with dedicated implementation teams, dedicated RFP response teams, development of a tracking system and database to support activity within the company and provide customer information, and the creation of a service center exclusively for processing FUSF and CTF applications and billing adjustments. SBC has worked with the SLC, RHCC, NECA, et al, every step of the way on the implementation process, and has raised many key issues critical to a successful implementation. The Schools and Libraries Corporation has recently recognized SBC for significant contributions to the implementation process.

In California, Governor Pete Wilson initiated a $1.1B Digital High School Grant Program. High Schools are selected by lottery to apply for the funds through a process which includes a plan review by the California Technology Assistance Plan regional groups. Final funds are approved by the State Board of Education. The funds are contingent upon the schools matching funds. Earlier this year, Pacific Bell provided all high schools in the first round of the lottery with a report containing information about any contributions we had made for the school's use as matching funds. These contributions included Education First ISDN lines, workshops which have a value as an in-kind contribution, etc. Our technical resources have worked with the schools in the development of their designs and technical plans; we have developed a workshop specifically focusing on facilitating a more comprehensive plan and effective use of technology integration into the curricula.

Technology

SBC has given a lot of money. But that's not where our story ends. SBC has also invested in technology to support education's ability to prepare students for the 21st century. Pacific Bell's Education First program provided schools, libraries and community colleges with technology resources to help establish the telecommunications infrastructure necessary to access the internet and participate in videoconferencing for distance learning. Education First provided free installation of ISDN lines and service for one year. The program was expanded to include Primary Rate ISDN to serve larger school districts and library systems, and provisioning of analog telephone lines was added to allow the most remote locations access to free service for internet use. A Wiring Fund was established to act as "seed money" to assist institutions in achieving their technology implementations.

Pacific Bell also tariffed Knowledge Network ISDN, a flat-rate local usage package for support of Education First sites after their free year of service ended. Higher Education customers can also avail themselves of up to 5 lines of KN ISDN. In Texas, a 25% discount on any tariffed products and services relating to Distance Learning and information sharing is available to all schools and libraries.

In addition, SBC has worked with equipment vendors to sponsor discounts for education and library customers. SBC's Internet service companies have designed discount programs to help these institutions provide the appropriate level of service to properly meet their users' needs.

SBC has sponsored numerous volunteer efforts to help schools and libraries "get wired". In California, NetDays have become a tradition with Pacific Bell heavily supporting schools with a group of volunteers wiring classrooms so computers can be networked and can access the internet. Pacific Bell has donated over $700K in NetDay Kits (cabling, connectors, jacks, etc., valued at $500 each) for NetDays around the state. In Texas, Oklahoma, Arkansas, Kansas and Missouri, Operation SchoolNet has provided wiring for classrooms and volunteers to install the wiring. The target is to complete the wiring of 6,180 classrooms by June 1999 in the five-state Southwestern Bell Telephone territory.

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SBC has provided technical design and support through data networking workshops, consulting, and on-site, hands-on support for schools and libraries. We developed and distributed an Applications Handbook (now in its second printing), added The Basics of Telecommunications Networks for Schools (a non-technical guide), to help lay the groundwork necessary for the establishment of a successful network. In California, we distributed thousands of copies of the K-12 Network Planning Guide, written by the California Department of Education, along with diskette versions (both Mac and PC). We sponsored the publication of the book "Reinventing Your School's Library in the Age of Technology", written by a professor/librarian at San Jose State University, which has been distributed to each superintendent and County Office of Education in the state, among others.

Resources

SBC has provided money and technology. Our education customers were grateful, but they said, "Okay, we're wired and we've got computers, but now what? How do we use them? How do we change the way we teach?" SBC has addressed this challenge with multiple resources.

The Education Advocates are credentialed mentor teachers who develop and deliver customized workshops to teach educators and librarians how to use and effectively integrate technology into the classroom and library. Over 20,000 attendees have participated in the Advocates' workshops since 1995. The Advocates are now delivering some of their workshops via interactive videoconferencing, allowing them to reach a broader audience while demonstrating the use of the technology. The Knowledge Network Explorer (www.kn.pacbell.com) is an award winning website designed for educators. We average 500K hits per month from over 70 countries. In July, 1998, as teachers prepared for the new school year, the Knowledge Network Explorer jumped to 1.5M hits, demonstrating the value of this important educational resource. The Application Design Team, supported by Pacific Bell through fellowships at San Diego State University's Department of Educational Technology in the College of Education has created tools, lesson plans and a number of other quality educational applications for the education market that reside on the Knowledge Network Explorer. We support a listserv of over 20,000 subscribers who receive a list of new, quality educational web sites on a weekly basis as part of the BlueWeb'n resource matrix on our site.

Along with the Knowledge Network Explorer website and Education Advocates, SBC has supported "Demonstration Sites" in its territory through donations of equipment, networking, and lines as well as provided resources for training and planning support. These pilot sites represent a cross-section of the education and library community: inner-city, suburban, and rural; K-12, libraries and Community Colleges; technology experts and technology neophytes. They have created an environment conducive to exploration and discovery, resulting in the integration of technology where none previously existed, the refinement of techniques and practices, and outreach to others in their communities and beyond. For example, the Southwestern Bell-sponsored project "OWLink" is a collaboration of Rice University, the Houston Independent School District, and the economically disadvantaged South Texas Independent School District. The project uses interactive video to deliver courses in algebra, calculus, and statistics to students that would not otherwise be available in the region. Students are also provided with opportunities to prepare for the SAT (Scholastic Aptitude Test). Additionally, training offered over OWLink last summer resulted in teachers creating and maintaining on-line curricular materials and learning effective use of the network and development of instructional strategies for distance learning.

The Education for the Future initiative, supported by the Pacific Bell Foundation and Education First, has worked with schools nationwide since 1990 to systemically change the way they do business. Its goal is to increase student learning by assisting schools, districts and counties that want to integrate technology as a way of accelerating school reform. The initiative's work has been documented in *The School Portfolio: A Comprehensive Framework for School Improvement* and in *Data Analysis for Comprehensive Schoolwide Improvement.*

The experts working on the Education for the Future project studied the Demonstration Sites for three years, and their findings conclude the value that technology brought to these locations:

> ..."Teachers who participated in the study reported that their students were highly motivated by the experience of collaborating with professionals and students at other schools and the use of technology as a tool proved to be a powerful strategy for effective teaching and learning."..."There were a number of positive impacts on students reported by the students and by their teachers, but one common to all sites was that students gained a global perspective and

> awareness of the world outside their schools and neighborhoods." . . . "By year three, the most often stated comment about the impact of the technology on teachers and staff was that they were communicating and collaborating more effectively with each other, and sharing ideas as a matter of course."
>
> *"The Impact of Education First on Teaching and Learning",*
> a study by Dr. Victoria Bernhardt.

SBC has also sponsored widespread computer donation programs. In California, Pacific Bell donated $1M along with thousands of computers which were refurbished, upgraded and deployed into classrooms around the state.

Volunteerism at SBC is an honored tradition. The Telephone Pioneers have been contributing to worthy causes for decades. Recently, employees have been able to donate time during their regular work day to schools in their area, assisting in the classroom where teachers are often forced to teach 30+ students, all with distinct needs. Our volunteers also participate in School to Career activities, which have become more prevalent with the focus on computers and their use to adequately prepare students for the job market. Junior Achievement has had a great deal of success in SBC with high level executive focus and personal support. Many chapters throughout the SBC companies boast ongoing involvement with students as they learn career skills. Dropout prevention is another area where SBC excels in its volunteer efforts by sponsoring workshops and after-school activities to engage restless young minds in a productive manner.

Tech Corps is a national non-profit organization whose volunteers offer technical expertise in hardware, software, and wiring, mentor students and teachers, work side-by-side with teachers in the classroom, deliver teacher training and offer advice on technology and network planning. Pacific Bell was the sole 1998 corporate sponsor of Tech Corps in California.

SBC has also sponsored fellowships to the TeleTraining Institute located in Stillwater, Oklahoma. The institute is recognized nationally as one of the premier professional development organizations for Distance Learning in the United States. Through these fellowships, teachers and administrators are able to get hands on training to use available technology for Distance Learning, multimedia, and Internet access.

SBC also actively recruits from our institutions of higher education throughout our region. We have hired students into management directly after graduation. We have sponsored internships for students and teachers resulting in benefit for both parties—the students and teachers learn successful business practices and we complete projects in a timely fashion with talent bringing a different and fresh perspective.

Additionally, SBC's grant support has manifested itself in several ways. We have an extensive database listing the contributions we have made to the education and library markets. We have placed a dollar value on items and resources donated which we provide to our education customers for matching funds opportunities. We have written hundreds of letters of support for schools and districts grant applications and have entered into many partnership agreements where we provide resources rather than actual dollars as a contribution.

SBC has also sponsored and delivered over 25 Grant Writing workshops (with 15 more planned this fall) with 1800 participants since 1996. Follow up with the attendees confirms that the participating school districts have received almost $17M in grants as a result of the key learnings the workshops imparted. SBC has also sponsored the publication of and distributed to the education community, copies of a guide for funding, "Building the Information Age Learning Center", to assist schools in the implementation of funds for technology resources.

And finally, SBC provides corporate matching funds for employee contributions to institutions of higher learning, thus doubling a donation and increasing its value.

Support for education is a robust and viable principle actively sustained and nurtured by dollars, resources, and sweat equity in SBC and through its employees. We strongly believe that education reform is critical to the vitality of American society and American business, and technology is a means to that end. We know, though, that technology is truly an effective tool only when it is accompanied by a shared vision of successful outcomes, thoughtful strategic design, practical planning, and a blueprint for professional development. We're proud of our history and our continuing endeavors to support the pillars of that philosophy through multiple means.

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ISBN 0-16-057671-7

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